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AGRICULTURAL HISTORY

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Agricultural History is designed as a medium for the publication of research and documents pertaining to the history of agriculture in all its phases and as a clearinghouse for information of interest and value to workers in the field. Materials on the history of agriculture in all countries are included, and also materials on institutions, organizations, and sciences which have been factors in agricultural development. The Society is not responsible for the statements or opinions of contributors.

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THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Its History, Organization, and Objectives

NORRIS E. DODD

Director-General, Food and Agriculture Organization of the United Nations

This opportunity to discuss with you some aspects of FAO's past, present, and future is greatly appreciated.[1] It is my hope that some of my remarks may leave with you certain specific suggestions for historical research much needed to fill in the gaps of our knowledge of FAO.

This afternoon I shall undertake to sketch for you a few of the broad streams of FAO's historical development, to indicate FAO's status at the present moment in history, and to point the direction of FAO's future trend as I see it.

Having done this much—and this, I assure you, is quite an order for a half-hour discussion—I shall leave the subject with an earnest invitation for you to pursue its many-sided aspects in detail.

We who work in the so-called "new" political and social organizations have a debt to the past which we too often take for granted. For, as historians you are well aware, our "new" institutions are in reality but a stage in human development, having antecedents in other institutions, pushed up by force of circumstance, fostered by the determination of men of strong purpose. A knowledge of the past of an organization is essential to an understanding of its present character and to an intelligent charting of its future course. It is indeed true, as it is engraved in the granite of the National Archives Building here in Washington—"What is past is prologue."

One of the wellsprings of the Food and Agriculture Organization was the systematic effort set in motion a half century ago to collect agricultural data on a cooperative basis internationally. This development, which culminated in 1908 in the establishment of the International Institute of Agriculture, was described in a recent article, from which I take the liberty of quoting at some length.

The movement to establish agricultural statistics on an international scale dates back to the beginning of the present century. As a matter of fact the need was recognized and even officially formulated nearly a hundred years ago. Between 1853 and 1876, a series of nine international congresses of statesmen, statisticians, political scientists, and others took place in Europe, at four of which the problem was discussed, followed on all four occasions by resolutions strongly recommending concerted action. Again, during the final quarter of the nineteenth century, 10 international conferences exclusively devoted to agriculture met in Europe, at a late one of which, after several previous exchanges of views, the project of an international clearinghouse for statistics was mooted and approved. (A somewhat loosely conceived "Confederation of Agriculture" had been formed in 1891 for the promotion of such meetings.) Meanwhile the International Institute of Statistics, founded in 1885, had placed the subject more than once on its agenda. It was not, however, until 1905 that definite steps were taken to implement these numerous pronouncements, particularly the one looking to an international clearinghouse for statistics. How the latter came at last to be realized is a story of unusual significance, human as well as economic and political in its interest, for the decision was largely due to the initiative and persistence of a single individual—one of the arresting personalities of the generation immediately preceding our own, ranking indeed among its outstanding idealists and men of action.

David Lubin, born in Poland (1849) but brought up on the East Side of New York, was one to whom success in business based on a strict integrity, an intuitive grasp of economic problems, and a profound sense of the duty of service, appears to have been second nature. Apprenticed to the jewelry trade, he early drifted to California where at the end of a few years, by methods then as novel as they were sound, he amassed a considerable fortune in general storekeeping. As an investment he had purchased a farm and fruit ranch. At this juncture, however, an unusual experience overtook him. He found that although in previous ventures he had achieved a uniformly satisfactory, sometimes even a notable, success, in farming notwithstanding every device that he could muster he periodically encountered actual losses. There were certain lions in the immediate path which with characteristic energy Lubin set himself to attack. In the final analysis, however, whereas he could estimate and in a measure provide against disabilities of a local or even national origin, his founda-

[1] This address was presented at the luncheon of the Agricultural History Society in the Mayflower Hotel, Washington, D. C., on Dec. 30, 1948.

tional difficulty lay beyond his control or even envisagement. It lay of course in the fact that he must sell the bulk of his crops at prices governed by world conditions, but that in regard to the latter, in the then state of statistical organization, there was little or no information of a kind that could reach or benefit the individual producer. Large private or organized interests, chiefly of middlemen, might, it is true, by the expenditure of considerable sums, inform themselves with a degree of promptness on these wider issues. The press also, and especially the agricultural press, gave out with fullness and despatch what information came to hand even from distant sources. The difficulty, however, as just stated, lay with the character of the information itself, wholly lacking as it was in many important details, and sporadic and inadequate in others. In certain countries, for example, it derived mainly from private sources and was often unreliable, either deliberately so or because of insufficient care in the preparation. In others, where government statistics had been undertaken, they still rested too often on narrow and unstable foundations or were assembled by methods that could not guarantee accurate results. Even where trustworthy government reporting systems had been developed (and in some countries these dated back well into the nineteenth century), the statistics came forward on different dates and at different intervals, often representing different methods of collection and compilation, and usually couched in different and confusing terminologies.

. . . . "Chaotic" is a not too highly colored term to apply to agricultural statistics, viewed from an international standpoint, in the closing years of the nineteenth century. The result was frequently to throw the marketing process into the hands of speculators far beyond the point at which "hedging" and similar dealings in "futures" perform a legitimate function. (The "cornering" of markets is possible only where ignorance of conditions is widespread.) Embarrassing as such a state of affairs may be for governments, it bears still more heavily in the ultimate resort upon the individual farmer. In these uncertain seas David Lubin found himself frequently, as he vehemently averred, without compass to steer by or rudder to steer with.

How Lubin succeeded, after years of effort, in bringing home these facts to the governments of the day need not be repeated here. It was a strenuous and long-drawn battle. To the governments of 1900, almost without exception, Lubin's proposals appeared premature if not impracticable, and himself, when he continued to press them, as visionary to the point of fanaticism. Later, however, he did not stand alone; several eminent economists and leaders of opinion became his converts. Nor, as we have seen, was he the first to suggest the specific way out. His place in the movement depends upon the doggedness with which for more than a decade, in season and out, he pursued his idea and refused to let it be laid aside. He was the gadfly that eventually brought action. At long last, in 1905, a conference of 113 delegates from 41 nations met at the call of the King of Italy to draw up a working plan based on Lubin's propaganda. Three years later the International Institute of Agriculture opened its doors.

. . . . From 1908 on, the Institute held the field as center of international thought and cooperation in agriculture, growing from a membership of 47 countries at birth to over 70 later, but falling off to 38 after the outbreak of World War II. To it, but with power and duties enlarged and extended in many directions, the Food and Agriculture Organization of the United Nations has now succeeded.[2]

It has been said that the birth of FAO resulted from the marriage of food and agriculture. The figure of speech vividly expresses a concept that gained currency during the economic depression of the 1930s. This concept rested on the assumption that the economic crisis resulted not from *over*production, as many thought, but rather from *under*consumption.

There was the paradox of seeming over production in the presence of great numbers of the world's population in want. Alleviation of hunger and also of the economic crisis, it was thought, should be brought about not through *decreased* production but through *increased* consumption.

Thus was joined in the minds of a growing number of men these two great related needs—the need of producers for a stable market, and the need of consumers for a dependable food supply.

It was against this background that Viscount Bruce of Melbourne in 1935—then the Australian delegate to the Assembly of the League of Nations—introduced a resolution for the study of the problem of nutrition as a practical measure for the improvement of health and the solution of agricultural problems. To effect the Bruce resolution a Mixed Committee on the Problem of Nutrition composed of experts in agriculture, health, and economics was formed to study and report on nutrition in its various aspects. The culmination of these studies was a report encouraging national nutrition activities. The national groups that were thus formed have greatly aided the Food and Agriculture Organization; some of

[2] Robert H. Coats, "Why a World Census of Agriculture in 1950," *Estadistica, Journal of the Inter-American Statistical Institute*, 6(18):29–31 (March 1948).

their personnel are now connected with the Organization.[3]

There is a link between these activities in the League of Nations and FAO through some of the leaders in both movements. Lord Bruce is now chairman of the Council of FAO. Sir John Boyd Orr, then director of the Rowett Research Institute in Scotland, worked closely with the Health Organization of the League. As you know, Sir John was the first Director-General of FAO. Present staff members of FAO who helped build the bridge between these ideas in the League of Nations and FAO are F. L. McDougall, Dr. W. R. Aykroyd, and Howard R. Tolley.

President Franklin D. Roosevelt advanced the idea of the marriage of a health diet and full agricultural production when in his address to Congress on January 6, 1941 he included "freedom from want" among his now famous Four Freedoms. You recall that he said: "In future days, which we seek to make secure, we look forward for a world founded upon four essential human freedoms." The first, second, and fourth of the Four Freedoms were freedom of speech and of religion, and freedom from fear. "The third," President Roosevelt said, "is freedom from want—which, translated into world terms, means economic understandings which will secure to every nation a healthy peacetime life for its inhabitants—everywhere in the world."

Recent advances in the science of nutrition, coupled with the development of a movement throughout the world to extend social security to the masses of people in all countries, contributed to the thought behind President Roosevelt's apt phrase. A combination of these concepts, with the idea of underconsumption as one of the paramount causes of economic depression, resulted in the tying of health and agriculture together as a problem of simultaneous solution.

A new attitude of governments and the public toward food was thus awakened. During the war many governments assumed special responsibility for their people's food supplies. For the first time, the public realized that enough food of the right kinds could effect a major improvement in health and that food production and distribution should be organized to this end.

It is worth recalling that the new approach was a direct outcome of advances in biological research during the last fifty years. Up to the last century the knowledge of nutrition comprised mainly the quantitative elements. Food was considered as fuel, and its value expressed in calories. Around the turn of the last century the importance of qualitative food factors—the importance of the so-called vitamins (and also qualitative factors of a different type in proteins, etc.)—began to be understood.

It became apparent that a deficiency of these factors is followed by very distinct disturbances of the health of man and also of farm animals. Only gradually was it understood that a relatively small scarcity of each of these factors decreases the evolution, growth, and health of the body and its resistance against stress (physical or psychological) and against infection. Finally it was realized that malnutrition, even in a degree far from actual hunger, tends to make people inefficient and irrational in their activities, and that the converse is also true. A people cannot be a healthy and benevolent people without adequate amounts of the right kinds of food.

The experiences of the war have brought food to occupy a central position in governmental policy in many countries, and it may ultimately take such a position in all countries.

It was against this background that President Roosevelt called a conference of the United and Associated Nations which met at Hot Springs, Virginia, on May 18–June 3, 1943. Its purpose was to be an exchange of views on agricultural production, nutrition and increased consumption, international measures for agricultural efficiency, and commercial and financial arrangements for the marketing of agricultural products.

This conference was to be the first of a series

[3] See the following publications of the League of Nations: *Official Journal, Special Supplement No. 137, Resolutions Adopted by the Assembly During Its Sixteenth Ordinary Session* (Geneva, 1935), 17; *Official Journal, Special Supplement No. 140, Records of the Sixteenth Ordinary Session of the Assembly, Minutes of the Second Committee* (Geneva, 1935), 15; *Quarterly Bulletin of the Health Organization*, vol. 4, no. 2 (Geneva, 1935); and *Final Report of the Mixed Committee of the League of Nations on the Relation of Nutrition to Health, Agriculture, and Economic Policy* (Geneva, 1937). See also International Labor Organization, *Nutrition and Social Policy* (Geneva, 1936); and Albert Way Strang, The Food and Agriculture Organization of the United Nations: A Study of Its Development, Organization, and Relationship to the United Nations (a thesis submitted to the Department of Government, Harvard University, 1947), 17–19.

concerning United Nations postwar cooperation. In point of time it preceded by four months the Moscow Declaration of the intent of the Big Four Powers to have a general postwar international organization; by fourteen months, the Dumbarton Oaks Conference; and by twenty-two months, the San Francisco Conference. Therefore officials were most interested in the conference's success and viewed it as a dress rehearsal for future conferences on postwar cooperation.

The Hot Springs Conference set up an interim commission to establish a permanent organization, and eighteen months later, in October 1945, forty-two governments ratified the constitution of FAO. In the three years since its inception, FAO's membership has grown to fifty-eight member nations.

At temporary headquarters in Washington a technical staff of high caliber has been assembled from more than thirty nationalities. Regional offices are now serving the areas of Europe, the Near East, and the Far East. A fourth is to be established soon in Latin America.

FAO's governing body, the Conference, meets annually to determine organization policy. Between sessions of the Conference the 18-nation Council of FAO convenes often enough to keep the world food and agriculture situation under effective year-round review.

Early in its operations FAO set in motion plans which resulted in the establishment of what is now the International Emergency Food Committee. IEFC, now functioning as an organ of FAO, took over the duties of the wartime Combined Food Board. It has helped to tide the world over the postwar emergency by recommending the allocation of basic foods and fertilizers in short export supply. The secretariat of IEFC has recently become the Distribution Division of FAO.

Other divisions of the FAO staff are Agriculture, Nutrition, Forestry and Forest Products, Fisheries, Rural Welfare, Information, and Administration.

This is the organization through which FAO functions in its endeavor to realize the objectives that its member nations are pledged to support. These objectives are:

To raise levels of nutrition and standards of living of the peoples under the jurisdictions of member nations;

To secure improvements in the efficiency of production and distribution of all food and agricultural products;

To better the condition of rural populations;

And, through all these means, to contribute toward an expanding world economy.

FAO is associated with the United Nations and other international agencies through agreements to share responsibilities in common problems. It has close ties with the United Nations Economic and Social Council, the Bank and the Fund, the World Health Organization and the International Childrens Emergency Fund, the International Labor Organization, and the Economic Commissions for Europe, Latin America, and Asia and the Far East.

The operations of FAO may be grouped under three headings—collecting information, giving technical assistance to governments, and promoting action by governments, individually and collectively, both in the fields of technology and economic action.

FAO has built up a valuable collection of technical studies in fields related to the Organization's functions. The catalog of FAO publications, issued in December 1948, includes more than a hundred titles.

Technical missions have been sent to Greece, Poland, Venezuela, and Siam. Schools have been held on a variety of technical subjects to bring advanced knowledge to professional workers in Europe, Asia, and Latin America. Plans are well advanced for the 1950 World Census of Agriculture. Schools to train national statisticians to improve the 1950 census have been held by FAO in the Near East, the Far East, and Latin America.

I have already mentioned the role of FAO in promoting action toward the organization of IEFC. The purpose of IEFC has been to secure distribution, according to national needs, of basic agricultural commodities in short supplies.

FAO is also interested in promoting action to stabilize agricultural prices fair to both consumers and producers, in order to stimulate the fullest possible production. The organization has given encouragement to programs for the development of multilateral commodity agreements to this end. Announcement of plans for drafting an international wheat agreement was made at the annual session of the FAO Conference held last month in Washington. President Harry S. Truman, in an address to the Conference, pledged his government's support.

The Conference summary of the food and agriculture situation was not reassuring. Despite a great improvement in recent months, for which

we may be thankful, the Conference felt that the food situation may too easily engender a false sense of security. It gave three reasons for this growing danger:

1. This year's harvest was far above what could be expected in an average year.

2. The increased dependence of the world on supplies from North America increases the element of risk, because of the extreme fluctuations of output which may occur in the United States and Canada.

3. World stocks of food have been cut to the barest minimum, and will still be low at the end of 1948–49, so that the world will again depend on the luck from next year's harvest.

The Conference found that cereals had reached a virtual equilibrium between exportable surpluses and effective demand.

As to sugar, the situation has changed from one of shortages and allocations to one raising fears of future surpluses.

The rice situation was considered not so favorable. A gradual improvement has been halted by failure of the monsoon in South India and by political and economic disturbances in some Far Eastern countries.

Production of oils and fats has reached the prewar level, but consumption in deficit regions, especially in Europe, remains well below prewar levels.

The livestock industry in the Northern Hemisphere, the Conference observed, anticipates a substantially increased output as a result of the much improved supply of feed cereals.

European milk production has increased on account of the good grass situation, and by the second half of 1949 the output of meat should be larger both in Europe and in North America.

The Conference reported the supply of textile fibers in general adequate to meet effective demand but found the output of forest products still insufficient in the face of greatly expanded demand.

The recent improvement in the food situation compared with the crisis persisting through early 1948, it was noted, has enabled many governments to relax or abolish controls. Food and clothing rationing has been largely discontinued in recent months. Regulations governing the use of agricultural products have been made more flexible or abolished.

Analysis of production trends indicated that only one region—North America—has made substantial progress in the expansion of food production during the past decade. This region has become the principal supplier of all deficit areas.

Since this involves not merely agricultural products but industrial equipment too, coupled with the abnormally high reconstruction needs of deficit areas, the situation illustrates "the grievous unbalance between the economies of the different regions." In the language of the Conference, this "constitutes the principal international economic problem of our time." An additional significant fact brought out by the Conference is that in recent years 80 percent of the world's cereal exports came from hard-currency areas.

The Conference reached the conclusion that, unless positive action is taken, the result of the present situation might well be aggravated disequilibrium in many spheres—a glut in some areas, deficit in others; a glut of one commodity and shortage of another; unexportable surpluses in one region for lack of the necessary foreign exchange elsewhere.

The situation raised two fundamental questions for consideration by the Conference. In the first place, a large increase in production is called for and is obviously most urgent in the deficit and low-income regions. To satisfy this need the Conference observed that a maintenance or expansion of high production levels in North America would be universally welcomed, "provided that satisfactory solutions could be found to the international trade and payment problems."

The need for maintenance or expansion of production levels, it was noted, leads to a second principal question: How can international trading arrangements be improved so as to facilitate a larger and more regular flow of products at prices fair to producers and reasonable to consumers?

This is a problem which FAO cannot solve by itself. We do believe that we can make a contribution toward more satisfactory trading arrangements. An important contribution which we can make is to keep the attention of the world centered on the problem through the international forum which the Conference and the Council of FAO provide. This attention, moreover, is centered on that need which is closest and most fundamental to all of mankind—the need for food, for clothing, for shelter and warmth.

We believe that we can also contribute through helping to spread everywhere the application of the most successful technology of agricultural production in all its phases. This is an important contribution, for one thing is clear—trading alone

will not feed the world better, when the supply of agricultural products necessary to healthful diets is not sufficient to nourish all of mankind.

A century and a half ago, Malthus formulated the proposition that mankind multiplies faster than it is possible to enlarge food production, and that only war and pestilence keep the species within bounds. There have always been people who thought Malthus right, and indeed the color of supporting facts can now be found. In the last decade, the world's population is estimated to have increased by 200 million persons or more, in spite of war and pestilence. The rate of population increase—20 to 25 million persons a year—means 55,000 more persons for breakfast daily in the world. We have not increased food production at the rate of 55,000 more daily rations.

But have we really tried to do so? I do not believe we have. On only small fractions of the earth's surface, and among small fractions of the earth's agricultural, forestry, and fisheries producers have we applied the technology which is at the command of mankind. In only fragmentary ways have we put into effect the economic engineering through which assurance can be given to producers that their efforts, their investments, and their risks will be compensated if they produce abundantly. We know that in the most productively developed countries the birthrate has decreased as the levels of living have risen. We see that soil fertility can be maintained in long occupied countries.

Until we have really tried to put mankind's knowledge, ingenuity, and human goodwill to work, I am not ready to say that Malthus' thesis stands proved. I believe that the history of agriculture and the history of mankind yet to be revealed need not be a dismal and declining history. I believe it can be a glorious history and that we can all have a part in making it so.

THE OLD RICE PLANTATIONS IN AND AROUND THE SANTEE EXPERIMENTAL FOREST

NORMAN R. HAWLEY

Forest Service, United States Department of Agriculture

The Santee Experimental Forest, a 6,000-acre tract of the United States Forest Service, is 30 miles north of Charleston, South Carolina, near the headwaters of the sluggish Cooper River. Loblolly, longleaf, and shortleaf pine occupy most of the well-drained soils of higher ground. Oaks, gums, ashes, maples, pond pine, and an occasional yellow poplar, together with numerous hardwood species of poor to noncommercial value, normally grow in the "bays" and lowlands leading to stream banks. Cypress invades the water courses. Work at the Santee now centers around timber growth —how to grow better trees faster. But there was a day when the work, the philosophy, the economy, and civilization here centered around rice.

A casual automobile traveler passing through sees little sign of agriculture. Now and then he catches a glimpse of current forest research activity or the scars of past commercial lumbering or turpentining operations. Occasionally he may note the remnants of a cabin chimney or a small abandoned field reverting to timber. But if he goes searching in the swampy woods, he will come across networks of earthen dikes with great trees growing from their crests. It was ten years ago that I first tramped through these lands in my forest work and wondered about the mile on mile of water-retaining dikes and the people who had built them. In 1945 I returned to the Low Country, talked with local historians, and read the selected books and manuscripts they recommended.[1] Everywhere the story was of rice and a vanished rice culture that flourished along the

[1] The author is indebted to E. Milby Burton, director of the Charleston Museum, Samuel G. Stoney, Charleston historian, and John Bennett, Charleston author, for invaluable advice.

Published sources are: Henry A. M. Smith, "The Baronies of South Carolina," *South Carolina Historical and Genealogical Magazine*, 11:75–91, 193–202, 12:5–13, 43–52, 109–117 (1910–1911); John B. Irving, *A Day on Cooper River* (Charleston, 1842); Duncan Clinch Heyward, *Seed from Madagascar* (Chapel Hill, N. C., 1937); David Doar, *Rice and Rice Planting in the South Carolina Low Country* (Charleston, 1936); Charles S. Chapman, *A Working Plan for Forest Lands in Berkeley County, South Carolina* (U. S. Bureau of Forestry, *Bulletin 56*, Washington, 1905).

Cooper River and its tributaries for nearly two hundred years.

Rice was introduced into the Carolinas partly by design but more by chance. On August 31, 1663, Lord Albemarle, one of the English Lords Proprietors, wrote the Governor of Barbados, advising him to influence planters to settle in the proposed province of Carolina. Among commodities which he listed for agricultural trial was rice. In 1672 the Lords Proprietors sent a barrel of rice to Charles Town (colonial Charleston) on the ship *William and Ralph*. History takes no further note of this consignment. In 1685 fate took a hand. A brigantine, sailing from Madagascar, put into Charles Town harbor in distress. Its captain, John Thurber, made the acquaintance of Dr. Henry Woodward, the first English settler in the province. To him Thurber gave less than a bushel of rice, peculiarly golden in the color of its outer hull. Woodward and intimate acquaintances planted the seed, spread the word of its magic, and within a few years Carolina claimed this seed from Madagascar as her own, naming it Carolina Gold Rice.

By 1690 the leading men of the province were petitioning Governor Sothell to arrange with the Lords Proprietors to permit the people "to pay their quit rents in the most valuable and merchantable produce of their land," among which they included rice. These products, they reported, "are naturally grown here." By the year 1700 there was being produced in the province "more rice than we have ships to transport," according to the Governor of the Council. The Lords Proprietors forthwith congratulated themselves upon "what a staple the Province of Carolina may be capable of furnishing Europe withal" and added that "the grocers assure us it's better than any foreign rice by at least 8s the hundred weight."

Thus, where earlier generations of Spanish in the New World had searched in vain for raw gold, the English and the French-Huguenots of the Carolinas and Georgia gleaned wealth from the golden grain. Rice, above all commodities, determined a way of expansive life peculiar to the Low Country. It enticed the dwellers of little seacoast towns up the reaches of pulsing tidal streams and set such men in fine mansions overlooking broad plantation acres. It caused the planter to reach across the sea for cheap labor and import black slaves in shiploads. In turn, it permitted him to send his sons to Oxford and Cambridge, to learn the secrets of statesmanship, medicine, law, and the pure sciences. Rice drew ships of the seven seas to the little wharves of Charles Town and Savannah, and in a generation built them into ports of world importance. Such commerce helped motivate the push westward, developed the Southern Colonies inland, and played its part in the winning of American independence.

The earliest culture of rice in America was necessarily confined to coastal swamps within the immediate protective influence of the towns. Due to the action of salt water at excessively high tides, such areas sustained little or no tree growth, a fact of prime importance in a day predating ample slave labor. Further, the unfriendly Indian controlled the choice lands inland. Therefore, after increasing their precious fractional bushel of Carolina Gold Rice through restrictive culture, it was to the savannahs bounding the Cooper and Ashley rivers where they swell to meet the sea at old Charles Town that Dr. Henry Woodward and his friends turned their attention shortly after 1685.

Once the particular field site was chosen, the early rice planter threw up a master dike at its lower end for purposes of repelling salt water. Above the rice field, and yet below a forested area of evident ample drainage abilities, he constructed a second dike, thereby creating a reservoir for purposes of impounding fresh water. Removal of swamp vegetation, construction of interior ditches and secondary dikes, and installation of water controlling gates completed preparatory phases. Providing that all went well, the early planter produced rice on such fields in paying quantities. He produced surprising quantities over a limited period, considering the fact that rarely did all go well. Salt water, and even brackish water, proved equally fatal to his crop. If the sea did not sweep in to inundate his fields, too often the anticipated fresh water supply from the uplands failed.

With less tenacious men on the ground, rice culture in America would certainly have died within sight of the sea shortly after its inception. Not so with the hardy Anglo-Saxons and French Huguenots. They pushed against the Indian. As he gave ground the planter found in fresh-water swamps inland the lands ideally suited to his needs. The English crown made the push legal. Land grants, attended by New World titles, were conferred with alacrity. In the area of what is

now southeastern South Carolina these grants normally consisted of blocks of 12,000 acres, termed "baronies." It was of little moment that recipients, comfortably safe in England, rarely exerted the energy to cross the water and personally supervise development of such properties. The planter happily shouldered the job. Necessary labor, in the form of the Negro, was being herded in increasing numbers across the wharves of Charles Town and other ports. Soon the planter, through his administrative abilities and the hand work of his slaves, was economically independent and gained title to the lands.

Such a block of land was Cypress Barony at the headwaters of the eastern branch of the Cooper River in what is now Berkeley County, South Carolina. Included within its ancient boundaries is the present Santee Experimental Forest. Cypress Barony was granted in 1683 to Thomas Colleton, son of one of the original Lords Proprietors. As was true in general of such foreign owners, neither Colleton nor his son and heir visited the lands. Planters, however, were on the job, as attested by a deed of 1707 which lists a dwelling house and outbuildings, fifteen Negroes, livestock, and farm machinery. An old plat indicates that by 1709 roads along the courses followed to this day were in place. The intriguing plantation names of Limerick, Windsor, Fishbrook, Silk Hope, Jericho, and Irishtown then or soon after identified themselves with lands now embraced within the Experimental Forest. Here as elsewhere in the Low Country the drive was on to clear and develop fresh-water swamps for rice culture.

Historians describe fresh-water swamps of that day as bearing stands of age-old hardwoods and cypress. The dark alluvial soils were so soft that man could scarcely traverse their areas. To avoid sinking, he necessarily stepped from root to root or trusted his weight to treacherous tussocks. His progress was further impeded by dense growths of briars and vines. Half the time the land was under water which, although fresh, pulsated with the rise and fall of ocean tides. The swamps varied appreciably in width. Some extended inland from parent rivers a mile or more, and all eventually intersected highlands. The highlands frequently ran narrow fingers riverward which ended in bluffs overlooking the streams. On these bluffs, exposed to the play of breezes and adjacent to stream travel, the planters built their mansions of brick, black cypress, and longleaf pine.

As the initial step in clearing a fresh-water swamp for rice culture, a large dike was constructed along the stream edge, with ends anchored to highlands. In these dikes heavy sluice gates, termed "trunks," were built. The trunks were long wooden boxes of planking, equipped with gates of either suspension or side-sweeping type. When properly set and coordinated with the schedule of tides, such gates would admit or repel the waters of the river and at the will of the owner permit him to fill, hold, or drain his field.

The planter then ditched the swamp to drain all free water possible, locked the trunks at low tide to hold his advantage, and felled and burned the timber. Large stumps were never removed. The remnants of many stand in abandoned rice fields today. The land was next laid off into "squares," or areas of equal elevation, bounded by secondary dikes and ditches. Such fractions were square only in name. Streams meandered, as did the fingers of highlands, describing boundaries of the swamps. Uniformity of subdivision was accordingly impossible.

The magnitude of such work in the Carolinas and Georgia can readily elude comprehension. It was a task accomplished solely by the hand of the Negro slave and long before the advent of the mule into Low Country rice fields about 1850. The late David Doar of Harrietta Plantation, one of the last rice planters of note in South Carolina, wrote that an average rice field of 500 acres contained 60 miles of dikes and attendant ditches. In 1851 Nathaniel Heyward of South Carolina died, leaving 5,000 acres of rice fields. It can be assumed that this one planter among a multitude also left 600 miles of dikes and ditches! If comparable figures were available it would be interesting to compare initial labor in American rice culture with that expended in construction of the Egyptian pyramids or the Great Wall of China.

The preparation of fields was but a step in the great labor of rice production which involved work in every season of the year. The demands on plantation management increased with the years. Historians note that in the beginning of the industry the soil, because of marked fertility, outranked man in importance. However, in the long span of rice culture, soil fertility was greatly lessened by erosive action, which likely removed a foot of topsoil from the average field. Along with loss in fertility the lowering of the field level invited additional breaks in the planter's river

dikes, for the river was correspondingly closer to his growing rice. Toward the end of the industry the importance of man ranked far ahead of the land.

In the fall or early winter the first seasonal move was made in preparing for the subsequent crop. Negro women burned the stubble remaining from the past crop. Blackbirds and ducks then descended to pick up the free rice. Such inroads were fortunate, for "volunteer" rice was undesirable. Early in February slaves of both sexes turned the land with hoes. Each field hand was given a daily "task," not exceeding one-fourth of an acre (one-fifth of the area later plowed by a mule). Slaves were taught to hoe exceedingly fine and thereby accomplish the dual job of plowing and harrowing. Ditch cleaning followed, where both men and women joined in dragging mud and accumulated litter from ditches to dikes. Each year certain ditches had to be deepened. This was accomplished by men who walked the ditches with shovels, pitching out the dirt as they progressed.

Two planting periods were recognized, namely March 10 to April 10, and June 1 to June 10. Planting was never done between the middle of April and the last of May because this was the northward migratory season for grain-consuming May birds. A favored method of planting was in trenches 4 inches wide spaced 11 inches apart. In the days of slavery the trenches were made with hoes. Only sufficient soil was displaced to cover the seed. Later, drills were used which averaged 8 to 10 acres per day, planting 2½ bushels of seed to the acre.

By careful planning, adjacent squares which could be readily watered in one operation were always planted simultaneously. The evening following planting, the overseer instructed the "water-minder" to apply the "sprout flow." This the minder did by opening trunk gates on the river side and adjusting gates on the field side for automatic closure at the beginning of ebb tide. The sprout flow served the dual purpose of sprouting seed and killing grasses. The minder gave the seed daily attention. When it "pipped" he reversed trunk gate settings and drained the field, for so long as seed was under water it would not throw a root.

A second flood, termed the "stretch flow," was applied when the blades of rice could be traced across the fields as long rows of greenery. This application of water was purely for purposes of destroying weeds. Fields were flooded to full capacity. When the tallest grain had reached finger length, the water was slacked to insure against drowning the shortest shoots. Here the water was held for one week, and then for ten days uniformly reduced until the field was dry.

Following removal of the stretch flow, the rice was permitted to grow on dry land for a period approximating forty days. In the interval, the fields were staked into ½-acre lots, or the normal day's hoeing for a field hand. Children were considered "half hands." When feasible they were placed two to the lot, adjacent to their parents, where they too labored with the hoe. Hoeing was usually accomplished twice during the period of "dry growth," and for purposes of eliminating weeds as well as to loosen the soil packed by the stretch flow.

The final flooding or "harvest flow" immediately followed the second hoeing. By then the season was too advanced for water to have adverse effect on weeds. Its application was accordingly for the sole benefit of the rice. For ten days to two weeks the harvest flow was kept to a normal depth. Thereon it was gradually deepened every five to six days until the rice was fully shot out and dikes filled to capacity. Except for a change of water every ten days, the flood level was retained until the rice was ready to be gathered.

In memory Duncan Clinch Heyward, rice planter of South Carolina, described his fields as follows:

> I know of no crop which in beauty can be compared with a crop of rice. In my dreams I still see the crops I used to grow, and when I am awake, I am conscious of the fact that my dreams failed to do them justice. This was especially true during the late spring and summer months, when the crop was passing through its successive stages of growth and looked different to me each day as I rode through it.
>
> Until the middle of July the color of the rice never looked the same. Some days it changed as constantly as the colors change on the surface of the sea. As its blades changed their direction with each shifting breeze, they changed their color also. Over the field a breeze often blew, coming inland from the ocean across the salt marshes and up the lower reaches of the river. Thus the crop was kept in constant motion, swaying in one direction and then in another. The result was that the whole field, as far as one could see, appeared to be alive, shifting with the wind, the sunshine, and the shadows of passing clouds.
>
> As the season advanced, a decided change gradually took place in the color of the field, for its green began to

be mingled with gold as the heads of rice appeared and its stalks began to be weighted down with the ripening grain. Yellow then predominated over the green until the whole field looked like a mass of gold, as it awaited the hook of the reaper.[2]

When the rice fields stood uniformly golden in late August and September, water was drawn for the last time. Plantation field hands stood poised on dikes, rice hooks in hand, for this was the season of coastal storms and dread West Indian hurricanes. As the water ebbed, the long stalks of rice appeared, overweighted with full heads, apparently inviting opportunity to be tipped into the muck and ruined commercially. Slaves then leaped into the fields, grasped three rows of grain in their left hands, and swung rice hooks with their rights. Cut grain was laid on the stubble to dry. The standard task was ½ acre. A skilled hand could cut a task in two hours. Each succeeding morning the hand cut one-half of a task while the sun was climbing, then tied the previous day's cut into bundles and placed them in small stacks. Certain planters left their stacked grain in the fields until threshing time, whereas the cautious restacked on higher ground. The latter measure was an added expense but frequently paid high dividends. With grain stacked in the low fields, the hazard of broken dikes, resulting from hurricanes, was always present.

For many years rice was threshed with flail sticks. Bundles were carted to a chosen spot of hard clay, usually adjacent to the barn. There the bands were cut and the bundles laid on the ground with the heads of the grain joining. Slaves walked between the rows, flailing the grain from the heads. Withal, this was slow work, and particularly so because it could be accomplished only in good weather.

The threshed grain was swept from the ground and taken to a winnowing house. This was a building set high off the ground on 20-foot posts. There the rice was poured through a grating in the floor during days of prevailing breezes. Chaff blew away, whereas winnowed grain fell to the ground. Clean grain in earliest times was pounded by hand with mortar and pestle to remove the outer hull. It was then winnowed a second time before being loaded into barges and rowed by slave labor down the rivers to market. In those early times the processing of rice for market on the average plantation was slow and frequently extended into the winter months. Many of the slower and more laborious processes of the rice harvest dated back unchanged through the era of the Egyptians to the very dawn of agriculture.

It was thus inevitable in the quickening New World that an inventive individual, likely a planter or an overseer, saw in the tides ebbing and flowing in the adjacent river the power to turn a pounding mill. Such a mill was perfected, and soon every plantation of consequence had set aside a "square" adjacent to the stream, known as the mill pond, through which fall and winter tides were allowed to sweep. An undershot water wheel, gauged to turn about five hours twice daily, was constructed and geared to large millstones. Thereafter mortar and pestle were abandoned; the great millstones ground husks from the grain. Although the pounding mill readily removed the husk from the threshed grain, the planter for many years thereafter continued the use of the flail in threshing.

In 1801 Jonathan Lucas, an Englishman, but then resident of Charleston, invented a steam-powered pounding mill. Steam became accepted on the plantation, and the use of tides for such purpose was gradually abandoned. In turn steam-operated pounding mills on the plantations were eventually discontinued in favor of centralized mills of large capacity in the cities. The most famous of these were the West Point Mills and Bennett's Rice Mill, both located in Charleston. The advent of such commercial mills introduced the shipping of rice in the husk, or rough state, from plantations.

With the centralized pounding mills established in the cities, the planter saw in his idle plantation mill the power to displace the flail. He built steam-powered stationary threshing units. These consisted of a conveyor house, into which bundles were thrown from carts and wagons; the mill proper, housing all machinery; and the rice house, where the salable product was stored, awaiting shipment. Alongside the rice house little river steamers docked to fill their holds.

Carolina Gold Rice has passed now from the Low Country of the Carolinas and Georgia. Climatic conditions in the form of destructive coastal hurricanes at the time of normal harvest, the loss of cheap slave labor, and the development of mechanized rice culture on the soils of Louisiana and other Gulf States combined to spell its doom. David Doar fittingly wrote in 1936 of its passing:

The great Rice Industry, which helped to make wealth and civilization for our coast country of South

[2] Heyward, *Seed from Madagascar*, 39–40.

Carolina, has passed away, as have the men of old who started and built it up, and the planters who carried it on after the Civil War are dropping off one by one. Even now they can be numbered on the fingers of one's hands and soon they, their rice fields, their houses, their manner of living will be but a memory. . . .

In years to come, when all the present generation have gone, the stranger and the wayfarer—passing along these mighty rivers, seeing the great dikes and the innumerable canals and ditches large and small, the fields divided into various sizes, or perhaps, roaming amongst the piles of bricks, all that remains of the old homes, driving up the old avenues of oaks and magnolias which led to them—will muse and wonder what race of men dwelt here and what all these works meant in and near the swamps.[3]

The wayfarer, while musing today over dikes and canals which were the bone structure of rice culture, marvels also that nature has returned to these lands in bountiful quantities the self-perpetuating crop which predated rice, the advent of the white man, and probably that of the red man. Timber is back to a soil now economically unsuited to agriculture and fortunately at a time when wood is high in demand.

It is strange to see pines and hardwoods standing in rice fields which two centuries earlier were hacked and shoveled from cypress swamps. There are spots in the Santee Forest where the old master dike that once impounded or excluded water now impounds even-aged stands of loblolly pine and excludes the many-aged hardwoods that grow outside the wall.

A modern man, standing on the flailing grounds of Limerick Plantation, where flails probably raised dust as early as 1707, or walking its avenue of live oaks, feels the centuries stand close beside him. Down this avenue nearly two hundred years ago rice planter Daniel Huger sent descendants as delegates to the Continental Congress, into the Revolutionary forces as generals, and to the shores of South Carolina to greet Lafayette when he first touched American soil. Near Limerick Avenue is the old Barony Road, now prosaic Highway No. 402, down which British troops came fleeing between the rice fields in July 1781. Hot in pursuit rode Francis Marion, Lighthorse Harry Lee, and Thomas Sumter. Eastward down the road past the old rice landing at the head of early navigation of the eastern branch of the Cooper River lies Silk Hope Plantation, where, soon after 1700, silk culture in America proved unsuccessful. There Lord Cornwallis, three quarters of a century later, established his headquarters while vainly attempting to catch Marion and his rice planters. Up the Barony Road, flanked by rice fields, swept E. E. Potter and his Union raiders in 1865 to serve notice to the Cooper River people of the passing of the slave, of rice, and that expansive way of life which rice had built in the Low Country. Following the fall of the Confederacy, a few owners attempted to resurrect the industry. But it was hopeless without the aid of cheap labor. Destructive hurricanes of August 1893 and September 1898 crushed all lingering attempts.

From the Barony Road I have often turned northward across the Santee headquarters yard and followed the dim line of the ancient cart road leading to Limerick's pounding mill site on the banks of Alligator Creek. There I climb to the crest of a 12-foot dike and follow with my eye the geometric pattern of lesser dikes that lose themselves on every hand in the gloom of timber. As I sit on a dike constructed by slave labor, the odor of pulp mills blows in from Charleston, 30 miles distant. Logging trucks rumble along the old Barony Road. On the breeze comes the whine of a portable saw mill. I think of the wealth that was once gleaned from the golden grain at such cost of human endeavor. And I think in comparison of the equal wealth to be gleaned at minor cost from successive crops of timber which these lands can produce. I can't help concluding that Mother Nature, following the rice interlude, has done well by man in bringing back the trees. At any rate, she, being a woman, has the last word.

[3] Doar, *Rice and Rice Planting* . . . , 7.

DIPLOMATIC SUPPORT OF THE AMERICAN RICE TRADE, 1835–1845

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Historians and other writers have paid little attention to the development of the American export trade in rice and less to the work of diplomats in protecting and furthering that trade, although materials relating to the history of rice plantations in the United States during the middle period are to be found in quantity. Recent works, supplementing as well as interpreting earlier literature on the subject, are largely concerned with the history of rice growing in the South: with methods of cultivation, the uses of slaves, the position of overseers, travel, and with life and culture on the rice plantations.[1] The lack of attention to the story of the export trade may be noted in most of the works dealing, in whole or in part, with the years between 1815 and the outbreak of the Civil War.[2] The absence of such attention is interesting since a substantial proportion of each year's crop was shipped abroad. Rice was fourth in value among agricultural exports of the United States, and nearly every foreign country to which the staple was sent collected a duty on its import.[3]

The promotion of commerce in general and of agricultural exports in particular was a task to which American diplomatic and special agents devoted considerable time and effort during the middle period.[4] In 1833, Secretary of State Edward Livingston stated the position of those who felt that the support of commerce was a function of American agents abroad. In commenting on the extension of American territory, the increase in population, and the commercial gains of the preceding years, he concluded that insufficient attention had been paid to the extension of commerce. "... commerce and navigation both require the protecting arm of Government abroad, as well as at home.... Where we have treaties, vigilant officers must be ready to see they are faithfully executed.... wherever we have a commerce worth preserving, we must have agents to protect it."[5]

Two examples of the work of vigilant officers abroad will serve to illustrate the handling of a policy that was based on the necessities of a growing commerce and that was concerned with the need of rice planters and traders for protection in foreign markets. The efforts of agents in behalf of the American rice trade in England and in the German States during the 1830s and 1840s provide the material for these examples.

For many decades before 1830 Southern planters and farmers had felt a need for government support of trade in agricultural products. American tobacco, carefully controlled by England during the colonial period, was heavily taxed throughout Europe after the Revolutionary War. Just as the Corn Laws in England, and similar regulations elsewhere, operated to dam the flow of American wheat shipments abroad, restrictions on the rice trade cut down the quantity of that staple exported to Europe. Such restrictions had existed since the beginning of the eighteenth century. Within a few years after Landgrave Thomas Smith planted the first seed in Carolina, the English Parliament, by the Act the 3d and 4th of Anne, 1706, placed rice among the enumerated articles that could not be exported except through British ports.[6] More than a century and a quarter later, agents of the United States were contending that British restrictions on imports of American rice were overly severe.

In the first half of the nineteenth century, Eng-

[1] See J. H. Easterby, ed., *The South Carolina Rice Plantation As Revealed in the Papers of Robert F. W. Allston* (Chicago, 1945), 1–3, for comments on some of the more notable works on the rice industry.

[2] *Ibid.*, 40, notes that the Allston papers shed little light on the trade after the rice reached the buyer. Other works are similarly concerned mainly with the domestic aspects of the industry.

[3] Cotton led all exports in value during the middle period; tobacco, wheat and flour, and rice were the principal other agricultural exports.

[4] Henry Merritt Wriston, *Executive Agents in American Foreign Relations* (Baltimore, 1929), describes the work of executive agents in both routine and special assignments in the conduct of foreign relations.

[5] *Diplomatic Intercourse* (22 Congress, 2 session, *House Executive Document 94*, serial 234, Washington, 1833), 2–3.

[6] Timothy Pitkin, *A Statistical View of the Commerce of the United States of America* (ed. 2, New York, 1817), 118.

land imported rice from the territories of the East India Company and from Ceylon, Sumatra, and Java, as well as from the United States.[7] During the first twenty-five years of this period, England's imports from the United States were principally of cleaned rice. In the mid-1820s American exporters began to ship cargoes of rough rice, or paddy, to English ports. According to *DeBow's Review* the first cargo of rough rice was shipped to England from Charleston by Jonathan Lucas, the younger, in 1823.[8] Lucas and his father had been builders of rice cleaning mills for many years, and in the early part of the nineteenth century their mills were well known in the rice-growing areas. In 1817 they constructed a steam-operated mill at Charleston, and in 1822 at the invitation of British government officials the younger Lucas went to England to build similar mills there.[9] As steam mills were built in English ports, England imported increasing amounts of rough rice from America. The profits made by operators of these cleaning mills plus the fact that rice in the husk kept better on a long voyage than did cleaned rice helped speed the change-over from imports of cleaned to imports of rough rice. As was the case with cleaned rice earlier in the century, Carolina and Georgia plantations supplied most of the rough rice that England needed in the 1840s.[10]

This change in the kind of rice that England imported from the United States accompanied a change in the scale of import duties. England gradually revised her tariffs downward, but American exporters were never satisfied as long as there was a duty, even when the only discrimination against the United States was in favor of rice from British possessions. The English impost was, in the years before steam cleaning mills were established in English ports, 20 shillings a quarter on rough rice from all foreign countries. In 1833 Britain lowered the duty on rice coming from British possessions to a penny a quarter. The tariff on foreign rice was not changed, and no discrimination existed against the United States in favor of any other nation. But in 1836 further tariff acts, the 5th and 6th of William IV, established such a discrimination by allowing rough rice from the west coast of Africa to come into ports on payment of the same low duty enjoyed by British rice, a penny per quarter, which was a mere fraction of the duty on American and other non-British rice.[11] Here was an issue, a peg on which definite objections could be hung. American planters and exporters objected to the discrimination, and the American Minister in London protested to British authorities. He based the protest on a treaty of 1815, "A Convention To Regulate the Commerce Between the Territories of the United States and of His Britannick Majesty."[12] Article 2 of that agreement contained a most-favored-nation clause, a provision that no higher duties should be charged on American exports to England than on those of any other foreign country. The American protest was strongly worded, and the British government acted quickly. A treasury order of December 1838 discontinued temporarily the high duty on American paddy and provided that it should be admitted at the penny-per-quarter rate paid on African rice until the question was clarified. Thus the order left open the final disposal of the matter, and the action was subject to confirmation by Parliament.[13]

The treasury order also left in doubt another question that was of more immediate interest to Americans. Some rice dealers had paid the old rate of 20 shillings per quarter after the order was issued. They demanded rebates amounting to the difference between the high and low duties. Other dealers had paid a penny per quarter but were forced to deposit exchequer bills in the amount of the difference between the two duties as security, in the event Parliament did not confirm the treasury order. These dealers demanded the return of the bills. The treasury lords flatly refused to return either money or bills, and the £80,000 in-

[7] J. R. McCulloch, *Dictionary . . . of Commerce and Commercial Navigation* (Philadelphia, 1850), 1108.

[8] J. D. B. DeBow, ed., *The Commercial Review of the South and West* (New Orleans), 1(4):355 (April 1846). See also Duncan Clinch Heyward, *Seed From Madagascar* (Chapel Hill, 1937), 23–24.

[9] See Anne King Gregorie's sketches of Jonathan Lucas and his father, Jonathan Lucas, in *Dictionary of American Biography*, 11:486–487 (New York, 1933).

[10] McCulloch, *Dictionary . . . of Commerce*, 1108.

[11] Edward Everett to the Earl of Aberdeen, Oct. 18, 1843, in *Rough Rice* (28 Congress, 1 session, *House Executive Document 278*, serial 444, Washington, 1844), 37–46. Everett showed that persons interested in rice mills in British possessions on the African coast had long pressed for such legislation. The point that American rice was a product of slave labor was made by those supporting a lower duty for African rice.

[12] Hunter Miller, ed., *Treaties and Other International Acts of the United States of America*, 2:595 (Washington, 1931).

[13] Everett to Daniel Webster, Dec. 28, 1841, in *Rough Rice* (28 Congress, 1 session, *House Executive Document 278*, serial 444, Washington, 1844), 3.

volved in the claims became the basis of an eight-year-long negotiation. Barely begun by Andrew Stevenson, the American Minister at London until 1841, the discussions were continued by his successor, Edward Everett, and Lord Aberdeen, the British Secretary of State for Foreign Affairs.

Everett took the position that the treaty of 1815 had been violated. He went so far as to contend that the treaty and the act lowering the duty on African rice were in mutual disagreement and that both could not stand. Aberdeen contended that the treaty was subject to two interpretations and that it had not been violated. While the diplomats debated these points, an act of Parliament settled the question for the future. It provided that from 1842 onward a duty of 7 shillings a quarter must be paid on all foreign rice entering British ports; rice produced in British possessions would continue to be admitted at a penny.[14] This act might have left the air clear for an early settlement of the claims, but an act of Congress provided a complication. The American tariff of 1842 included a list of duties on certain English goods, some of which were in transit to the United States when the act became law. English merchants who had shipped goods to the United States prior to the arrival in England of the news of the new tariff found their products exposed to unexpected duties. British officials, recognizing a bargaining point, induced the merchants to make claims against the United States for losses under the new tariff. The British then accused the Americans of violating the treaty of 1815.

Everett continued to support the claims of the American rice dealers, but negotiations dragged more than two years longer. The impetus for making a final settlement and the payment of the claims came while John C. Calhoun was Secretary of State. He felt that the question involved slavery and that the real reason for British delay in payment of the claims was that American rice was a slave-produced article. Everett had made this point much earlier, regarding it as a consideration but not a vital one. Calhoun urged it as a prime factor. Writing in February 1845, he expressed confidence in Everett's course in regard to the rice claims and said that he hoped the matter would soon be settled. He then continued:

> Should it, however, not be settled at the time of receiving this despatch, you are directed to bring the matter again before the British government, in such a manner as you may deem expedient under the new state of circumstances, which has arisen since the enforcement of the new law levying discriminating duties on sugar. The order issued by the lords of her Majesty's treasury, admitting sugar from the United States under the lower duty, although produced by slave labor, entirely takes away all pretext for any longer withholding the duties collected on rough rice. The ground for the discrimination in the case of rough rice and sugar is precisely the same, and the construction of the treaty by her Majesty's government, with respect to sugar, must remove all doubt or dispute as to the rough rice duties.[15]

Later in 1845 R. Barnwell Rhett went to England where he urged both the American Minister, now Louis McLane, and Lord Aberdeen to conclude the discussions.[16] Rhett was a forceful emissary, and his position as a member of Congress added weight to his arguments.[17] It is also to the point that during the late summer of 1845 the question of conflicting claims in the Oregon Country was troubling both the United States and Britain. The insistence of two South Carolinians, Calhoun, the Secretary of State, and Rhett, a member of Congress, and the need of eliminating vexatious small controversies in view of the larger Oregon question, when added to the pressure exerted by American ministers over the preceding years, were sufficient to force a settlement of the rice controversy. Each government accepted the claims that had been advanced by nationals of the other, and the question was closed.[18]

Thus was concluded a routine effort by the Department of State and its representatives abroad to protect the interests of Americans dealing in rice. It is not necessary here to determine the relative weights of the various factors involved in the discussions. The sketch serves to illustrate the consistency with which the Department of State supported, over a long period, the interests of one

[14] Charles Barry to Everett, Sept. 26, 1842, in *ibid.*, 21–25. This act probably resulted from Peel's policy of removing restrictive duties on English imports rather than from the protests of American rice dealers and diplomats, who had not at first asked for lower duties but had only objected to discrimination.

[15] Calhoun to Everett, Feb. 11, 1845, in *Rough Rice and Paddy* (30 Congress, 1 session, *House Executive Document 38*, serial 516, Washington, 1848), 8.

[16] Louis McLane to James Buchanan, Aug. 16, 1845, in *ibid.*, 14–15.

[17] N. P. Trist to James McHenry Boyd, Sept. 14, 1846, in *ibid.*, 18–19.

[18] Buchanan to McLane, Feb. 26, 1846, Boyd to Buchanan, Oct. 14, 1846, and Buchanan to R. Packenham, May 18, 1846, in *ibid.*, 16–17, 19, 20.

agricultural-commercial group in one foreign country.

During the same years, while ministers in London were trying to aid rice merchants engaged in the British trade, American agents were working toward a similar end in the German States. When Henry Wheaton went to Prussia as chargé d'affaires in 1835, his instructions from Secretary of State John Forsyth reflected the view expressed two years previously by Livingston that "wherever we have a commerce worth preserving, we must have agents to protect it." Forsyth's instructions to Wheaton included the direction that high duties on rice and taxes on tobacco were the two things with which Wheaton was to concern himself particularly. An additional directive was provided in a resolution of the House of Representatives in 1838. In June of that year Hugh Legare of South Carolina moved that "The President be requested to instruct our diplomatic agents in Germany to endeavor to procure a reduction of the duties on American rice imported into the States of Germany, especially those associated in the Commercial and Customs Union."[19] Since Wheaton was already at work on the problem, and as his original instructions had included the same point, the resolution added nothing, but it served as a reminder and as a notice that the House of Representatives approved the work in behalf of the rice trade.

As America's ranking diplomatic representative in the German States Wheaton urged other American agents there to bring the tariff question to the attention of the Germans. He summarized one argument in support of lower duties in a letter he wrote to the American consul at Dresden late in 1837. In the letter Wheaton pointed out that the United States wished to consume more goods manufactured in the German States. Increased purchases of such goods, he said, depended upon increased sales of American commodities, particularly of tobacco and rice. So long as high duties checked consumption of these the hoped-for sales of German goods in the United States would be held up.[20] Wheaton offered a slightly different argument in a memoir that he presented to a convention representing the German customs union (Zollverein). He predicted that lower duties and the consequent lower prices would so increase consumption that revenues would be greater.[21] These and other arguments convinced the Germans, and they lowered substantially the duty on rice imported into any state of the customs union.[22] As a further result of his efforts Wheaton signed a treaty with representatives of Hannover in 1840. While this treaty was more favorable to the trade of the United States than earlier agreements had been, no American agricultural staples were specifically mentioned, and it included no special benefits that could apply to them.[23]

Wheaton felt that the duties which prevailed after these arrangements had been concluded were as low as could be expected. He regretted, however, that the United States had no security that the duties would not be increased, other than the policies of the affected German States, since agricultural products were not specified in the treaty.[24] He continued his efforts and in 1844 concluded a second treaty with Hannover, containing a provision that the lowered duty on rice would not be raised. The Senate rejected this treaty, thereby destroying the guarantee of a continued low duty on rice.[25]

To follow up Wheaton's successes and to extend the areas covered by treaties, A. Dudley Mann was appointed special agent of the United States at Hannover in 1846. Mann also carried letters of credence to the grand duchies of Oldenburg, Mecklenburg-Strelitz, and Mecklenburg-Schwerin, which were members of the German confederation (Deutscher Bund) but not of the customs union (Zollverein). Mann's first task was a revision of the treaty of 1840 with Hannover. His instruc-

[19] *Congressional Globe*, 25 Congress, 2 session (1837–38), 6:445.

[20] Henry Wheaton to E. S. Ravinius, Nov. 9, 1837, in *Tobacco Trade* (26 Congress, 1 session, *House Executive Document 229*, serial 368, Washington, 1840), 52–53.

[21] Wheaton to John Forsyth, July 20, 1838, in *ibid.*, 76–77.

[22] See 27 Congress, 2 session, *House Executive Document 163* (serial 403, Washington, 1842), 486–487.

[23] Miller, *Treaties and Other International Acts*, 4:257–268 (Washington, 1934).

[24] Wheaton to Webster, July 15, 1841, in *Tobacco* . . . (28 Congress, 1 session, *House Executive Document 173*, serial 442, Washington, 1844), 13.

[25] The treaty included a provision that the United States tariff on looking-glass plates, toys, linens, and silks must be reduced. The Senate rejected the treaty by a party vote on the ground that Congress alone should regulate commerce and pass revenue laws. See Eugene Schuyler, *American Diplomacy and the Furtherance of Commerce* (New York, 1886); and Elizabeth Feaster Baker, *Henry Wheaton, 1785–1848* (Philadelphia, 1937).

tions gave him power to treat with these states and continued:

> You are to conclude no treaty, however, unless the Governments of Hanover and Oldenburg shall stipulate for the following equivalents.
> Four of our great staples, cotton, tobacco, rice, and whale oil are not only largely consumed by the population of Hanover and Oldenburg, but are transported through their territories into the heart of Germany, for the consumption of other German States. At present, these articles pay considerable transit duties, to the injury of the United States. Hanover and Oldenburg . . . ought to abolish the transit duties on these and all other articles, the growth, produce, or manufacture of our country . . .
> Without such an abolition or reduction of the transit duties on the four important articles of cotton, tobacco, rice, and whale oil, you are not authorized to conclude a treaty.[26]

Within a few months Mann negotiated a treaty with Hannover that included the required stipulations. By Article 12 the United States agreed to make similar conventions with other states of the German confederation.[27] Under this article Mann concluded a treaty in 1847 with the Grand Duchy of Mecklenburg-Schwerin which abolished the import duties on raw cotton and those on rough rice. In the same year he arranged with Oldenburg a "Declaration of Accession to the Stipulations and Provisions of the Treaty with Hanover of June 10, 1846."[28]

A result of the treaties that Mann negotiated, added to the action of the customs union in 1840, and to Wheaton's successful work, was a material increase in the quantity of rice exported from the United States. The already large export to the Hanse Towns was maintained, shipments into Prussia (negligible before 1840) rose as high as 2,500 tierces a year within a decade, and indirect shipments to the German States via Belgium increased.[29]

Thus, for ten years after Wheaton's appointment to Prussia in 1835 and the British tariff acts of 1836, American agents on the Continent and in England worked in behalf of the rice trade. That rice interests were not the primary concern of diplomats or agents in either place, that negotiations moved slowly at times, and that successes were relative can not obscure the facts that the Department of State never lost sight of the needs of the rice traders and that positive gains were made. It may be noted that the negotiations were carried on during the administrations of four presidents (five if Harrison's short term is included), who differed markedly on many policies. Five men served as Secretary of State between 1835 and 1846, and three others technically occupied the post for brief periods during the decade. That negotiations in support of the rice interests had continuity was due in part to the fact that Everett and Wheaton occupied their posts for relatively long periods. Responsibility for the continuation of the negotiations, however, always rested in Washington. The agents abroad were carrying out a policy of support for foreign trade, a policy that was based in part on the interests of American rice planters and exporters.

[26] Miller, *Treaties and Other International Acts*, 4:844.
[27] *Ibid.*, 4:839.
[28] *Ibid.*, 5:161 (Washington, 1937).
[29] J. D. B. DeBow, *The Industrial Resources, Etc., of the Southern and Western States*, 2:411 (New Orleans, 1852).

TERRACING IN THE SOUTHERN PIEDMONT

ARTHUR R. HALL

The practice of terracing farm land is quite venerable. Terraces have been employed in various parts of the world for irrigation, erosion control, or to secure a level surface for cultivation. In the United States erosion control and the development of a level surface have been the principal objects of terracing, although irrigation is practiced in terraced orchards in parts of California. At first confined primarily to the Southern States, the practice of terracing has spread to many other parts of the country in more recent times. The present article deals with terracing in the Southern Piedmont of Virginia, the Carolinas, and Georgia because many of the early American trials of mechanical erosion control were made here and farmers in the newer parts of the South were influenced by the experience gained in this region.[1]

[1] This article was presented in shorter form at the

The general principles regarding the virtues and limitations of mechanical erosion control discovered in the Southern Piedmont appear to be of general application.

Terraced farms are a characteristic feature of the landscape of the Southern Piedmont. This is especially true in the cotton-raising areas. One finds stair-stepped fields where fairly steep land is still cultivated in the traditional manner, or modern drainage-type, broad-base terraces on land that is more gently rolling. In some places even the hillside ditch, the ancestor of the present terrace, is still in use. The methods employed are for the most part indigenous to the region, having been developed by trial, error, and experimentation there, with very few borrowings from foreign practice.

The physical conditions of the Southern Piedmont, together with the type of farming practiced, made it logical that terracing should be adopted. In the geological sense the region is maturely dissected, the river valleys being comparatively narrow and the descents from the upland to the valley being rather steep. The bottom lands, although fertile, are narrow and exposed to overflow. Uplands along secondary streams back from the principal river valleys present surfaces that are undulating or steeply rolling, but level areas are comparatively small in extent. Nevertheless a large percent of the land originally considered the most fertile was on such rolling uplands where running water would quickly take toll of the cultivated soil. The interfluvial divides between drainage basins of the principal rivers are in many cases rather wide and level, but such lands were not considered first choice by the early settlers and in many areas were not brought into extensive cultivation until after the Civil War.

The amount of precipitation received annually in the southeast is rather heavy compared with that received in the northeast or the Ohio Valley. The season of greatest precipitation is late summer, when the fields of corn, cotton, and tobacco are in clean tilth and can offer little resistance to erosion. Most of the summer rainfall comes in the form of short intense thunderstorms—"gully washers," as they are termed in local parlance. During these periods the rain falls faster than the earth can absorb it, and serious sheet washing and shallow gullying may result. The terrace builder is accordingly not concerned so much with the average annual precipitation as he is with the greatest amount likely to fall in any one summer thunderstorm. If he underestimates this factor productive fields and expensive terrace systems may be ruined in a few hours of hard rain. The winter rains are "tater soakers," that is, they are steady and gentle. However, because the winters are mild and open the ground is not protected by a blanket of snow. Erosion thus continues throughout the year.

The principal crops from the late eighteenth century to almost the present time—corn, tobacco, and cotton—were planted in hills or rows and were clean-cultivated. The ground between the hills or rows was stirred repeatedly during a good part of the growing season by hoes and plows. Except for such grass and weeds as appeared after the last cultivation in late summer, the fields were left bare throughout the fall and winter

Vegetative methods of erosion control, such as the plowing under of legumes, alternation of winter cover crops with summer row crops, and strip cropping have been used in the Piedmont, especially within recent decades. Throughout much of the history of the region, however, vegetative methods on a large scale were not suitable because the existing market demand was for crops that were cultivated in rows, whereas there was comparatively little demand for small grains or other close-growing crops. Terracing and the other mechanical erosion control methods were adaptations to existing economic and physical conditions. They represented attempts to control erosion and simplify the task of cultivation in hilly country where much of the tilled land was necessarily in row crops.

Horizontal Plowing. Plowing with the small one-horse shovel plow of the early nineteenth century was a laborious operation on the undulating Piedmont fields. Rows were generally laid out in straight lines and were crossed, or checked, by another set of rows at right angles to the first. If rows lay up and down the slope the work was

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joint meeting of the Agricultural History Society, the Economic History Association, and the Mississippi Valley Historical Association at Columbus, Ohio, on April 26, 1947. It forms a chapter in the author's doctoral dissertation, Soil Erosion and Agriculture in the Southern Piedmont: A History, presented to the History Department of Duke University in 1948. Most of the material for the article was gathered in connection with the erosion history projects of the former Division of Climatic and Physiographic Research, Soil Conservation Service, U. S. Department of Agriculture.

difficult for man and beast, and as a result the soil was often barely scratched. The water from summer showers was carried off rapidly down the straight furrows, taking the shallow layer of loose soil with it, and leaving the field parched and drought-stricken during the succeeding dry spells. Plowing at an angle to the direction of the slope, or along the contour, was adopted in order to make the work more efficient and to conserve soil and moisture.

Some farmers in the tidewater area of Virginia had abandoned cross plowing in favor of horizontal (contoured) furrows in the late eighteenth century. The practice of contouring was known also in Maryland, Pennsylvania, and perhaps elsewhere by the beginning of the nineteenth century. Thomas Mann Randolph of Albemarle County, in the Virginia Piedmont, first attempted horizontal plowing in 1793, and in 1808 designed a hillside plow with a shifting moldboard and share that would turn the furrow slice downhill in going either direction across the face of the hill. His father-in-law, Thomas Jefferson, was at first skeptical of the new method of plowing, but later became enthusiastic and gave the method and the plow wide publicity in his voluminous correspondence. Friends as far away as the Mississippi Territory were induced to try horizontal plowing. Other Virginia inventors, including Cyrus H. McCormick, made improvements in the hillside plow.[2]

Randolph's method was to lay off guide rows on the contour 30 yards apart. For a corn field, intermediate rows were laid off parallel to these by eye, 6 feet apart, and bedded up so that a generous water furrow was left between each row. The leveling instrument used quite widely throughout the southeast to lay off the guide rows was the rafter level, or "A" frame. It consisted of two lengths of board fastened together at their ends to form an acute angle and a bracing crosspiece, giving the whole the appearance of a capital A. The distance between the two legs at the bottom was from 10 to 16 feet. A plumb line was suspended from the apex, and the crosspiece was graduated in such a way that the variation of the plumb line from the perpendicular could be noted. The instrument was stepped across the field by swinging it from one leg to the other. If a row exactly on the contour was desired, care was taken that the plumb line should fall exactly on the perpendicular mark of the crosspiece with every step. The plow then followed the line marked off by the rafter level.

Horizontal plowing was practiced by some farmers in the South Carolina Piedmont by about 1815 or 1820. Certainly by 1830 it was familiar to quite a number of farmers in the Southern Piedmont.[3] In the first flush of enthusiasm some practitioners believed that it would completely solve the erosion and water conservation problems, but those who continued to plow fields on the contour for a number of years came to realize that exactly horizontal crop rows did not have the capacity to hold the more intensive rains of summer. The method used by Jefferson and Randolph was modified in some instances by giving a slight fall to the crop rows so that the water would drain into some convenient natural draw or small gully. Other farmers, after plowing on the contour, cultivated in such a way that the land was left flat, without water furrows, on the theory that the water would pass over it in a sheet and would not collect at any point to form a gully.[4]

Much of the supposed inadequacy of horizontal plowing seems to have been due to improper execution, for many farmers did not lay off rows by instrument, but relied solely on eye or instinct to guide the plow around the circuitous contour of the hill. In Albemarle and other counties of the northern Virginia Piedmont horizontal plowing was eventually abandoned to a large extent. The cultivation of clover and the grasses and rotation of clover with corn furnished a cover crop and made contouring less necessary.

Hillside Ditching. In the tobacco and cotton areas of Southside Virginia, the Carolinas, and Georgia clean cultivation, shallow plowing, and lack of rotation remained the rule. It was found

[2] Letter from Thomas Jefferson to Tristam Dalton, Monticello, May 2, 1817, in *The Works of Thomas Jefferson*, ed. by Paul Leicester Ford (New York, 1904–1905), 12:56–57; Letter by Thomas Mann Randolph in "Farmers and Farming in Virginia in the Olden Time," *Southern Planter* (Richmond, Va.), 44:318–319 (July 1883); B. L. C. Wailes, *Report on the Agriculture and Geology of Mississippi* (Philadelphia, 1854), 153; and Cyrus H. McCormick, "M'Cormick's Self-Sharpening Horizontal Plough," *Southern Agriculturist* (Charleston, S. C.), 8:272–274 (May 1835).

[3] William Ellison, "On Horizontal Ploughing," *Southern Agriculturist*, 3:178–182 (April 1830); and Highlander, "On the Benefits Arising from Horizontal Ploughing and Ditching," *ibid.*, 4:301–303 (June 1831).

[4] Ellison, "On Horizontal Ploughing," *ibid.*, 3:178–182 (April 1830).

that not only must contour plowing be adopted, but it must be supplemented or modified by the use of hillside ditches to receive the excessive water and carry it off gradually. Hillside ditches were used in Virginia as early as 1813. By 1830 they were to be found in various places throughout the Piedmont. Early systems of hillside ditches consisted of U-shaped gutters about 3 feet wide and 2 feet deep laid out with the rafter level and excavated with spades. They were inclined each way from the center of the hillside field into the nearest convenient ravine on either side of the field. The excavated dirt formed an embankment on the lower side of the ditch. The ditches were placed 20, 50, or 100 yards apart according to the steepness of the slope. Such a system of ditches divided the field into several small strips, and the difficulty of passing wagons or plows over the ditches was considerable. To resolve this difficulty it was found desirable to make the ditches with plow and hoes instead of spades, forming a gently concave ditch about 3 feet wide and a rounded embankment of about the same width on its lower side.

The specifications as to size, length, grade, and spacing of hillside ditches varied widely as the practice came more into vogue. Some farmers made rather small hillside ditches, especially on light sandy or loamy soils, and in time these were called guard drains. In parts of South Carolina, however, the term guard drain was used for all hillside ditches. The grades of the ditches, that is, their rate of descent downhill, ranged from 8 inches to about 35 inches per 100 feet. Experienced makers of hillside ditches did not attempt to make them more than 300 yards long.

The problem of outlets for the hillside ditches was always a serious one, for if the water was not properly controlled at these points the whole system would prove ineffective. If possible, the ditches were sometimes emptied into a small branch or creek, and they were graded in a direction opposite to that of the natural fall of the branch, on the theory that this would slacken the velocity of the water. If it was necessary to make a ditch directly downhill to receive water from several hillside ditches, this center ditch was sometimes paved on the bottom with stone, or was sown in grass and clover, forming what today would be called a meadow strip. Gullies or natural depressions in the field that were used to receive water from hillside ditches were sometimes treated in the same way. Far too many farmers, however, simply emptied their ditches into the nearest convenient fence row, road, or raw gully and in time discovered that more harm than good was being done by their hillside ditches.

The manner in which hillside ditching and horizontal plowing should be combined was the theme of lively controversy. Some farmers contended that the crop rows should be laid off exactly on the contour and thus empty their surplus water into the graded ditches. Others advocated that crop rows should be parallel to and maintain the same grade as the hillside ditches.

By the decade before the Civil War considerable progress had been made in evolving principles of construction and maintenance of hillside ditches, based on the experience of practical planters and farmers. Several writers had written comprehensive essays on the methods. As a result of an essay contest conducted by the North Carolina State Agricultural Society in 1857, Nicholas T. Sorsby, M. D., a resident of Alabama, but a native of North Carolina, wrote the prize-winning treatise, "An Essay on Horizontal Plowing and Hill-Side Ditching." He gave a brief history of these methods of erosion control in the United States and outlined the various ways in which contour cultivation and ditching might be combined to accommodate differing situations of soil texture, slope, and type of crop raised. He thus attempted to synthesize the different and apparently conflicting systems of hillside ditching and horizontal plowing. The publication included field diagrams and tables. It was perhaps the most pretentious treatise on the subject of hill-ditching. Other prominent writers on the subject were D. Wyatt Aiken, later a leader in the Grange and a Congressman from South Carolina, Nelson Clayton of Georgia, J. W. Norwood of North Carolina, and R. S. Hardwick of Georgia.[5] The significance of

[5] Nicholas T. Sorsby, "An Essay on Horizontal Plowing and Hill-Side Ditching," North Carolina State Agricultural Society, *Transactions, 1857* (Raleigh, 1858), 33–68; J. W. Norwood, "Letters on Horizontal Plowing and Hill-Side Ditching," *ibid.*, 85–92; D. Wyatt Aiken, "A Practical Paper Upon Grading, Ditching and Improving Land," South Carolina State Agricultural Society, *Transactions, 1858–59*, 77–90; Nelson Clayton, "Premium Essay on Hill-Side Ditching," *Southern Cultivator* (Augusta, Athens, Atlanta, Ga.), 11:41–42 (February 1853); R. S. Hardwick, "Mr. Hardwick's System of Hill Side Ditching," *ibid.*, 9:68–69 (May 1851), and "Hillside Ditching," *Southern Farm and Home* (Macon, Ga.), 1:5–9 (November 1869).

Sorsby's essay was that it presented a comprehensive picture of practices then in use based on the experience and observation of one careful planter.

Development of Horizontal Bench Terraces. Following the Civil War the practice of hillside ditching continued to be widespread and apparently increased in popularity in the cotton areas. The realization was growing, nevertheless, that it was not the final answer to the problem of erosion control by mechanical means. Even the advocates of hillside ditching admitted that it often created more gullies than it prevented, but proponents generally attributed this to improper construction or maintenance.[6]

The principal objections to the system fall into about three categories. First, the hillside ditch was too narrow to hold the water from the most intense thundershowers if laid on a gentle grade, but if graded sufficiently to carry off the water the ditch eroded. Thus, although the ditch might prevent gullies directly down the hill, it might cause one to be formed obliquely across the hill. The soil of the field was not held in place by the ditch, but might run out through the ditch almost as rapidly as down a crop row. Second, because of the increasing use of commercial fertilizer, some method was needed to prevent that expensive material from running off of the hilly lands with the first rain. Hillside ditches were useless for this purpose. Third, the generally neglected and run-down appearance of plantations in the southeast, due in part to the general practices of Southern agriculture, and in part to the unsettled conditions of Civil War and Reconstruction times, perhaps caused hillside ditching to appear to be more harmful than it really was. One writer now saw fit to blame hillside ditching with precisely the same baneful results that in the early decades of the century had been laid at the door of shallow plowing and straight rows.[7]

Occasionally there were to be found men in the cotton region who practiced general farming and who thought it possible to abandon hillside ditching and at the same time preserve their land. They did this by the use of horizontal and deep plowing, rotations that included small grains, legumes, grasses, and fallow, with a clean-tilled crop on the land only about one year out of four. The general trend, however, was away from such practices. The cotton farmer was obliged to retain and develop mechanical erosion-control devices.[8]

A group of related practices that may be designated collectively as hillside stripping or hillside hedging was adopted in some quarters as a substitute for, or supplement to, hill ditching. As early as the 1830s one farmer of Fairfield District in South Carolina had suggested that horizontal uncleared strips be left across the slopes to catch the soil from above, and Robert Watts of Edgefield District in the same State had uncultivated strips just above his hillside ditches.[9] Again in 1871 it was advocated in Fairfield that permanent contoured rows of logs or brush or hedge rows should be made at intervals, parallel to the cotton rows, with ditches on the lower side. A Georgia farmer planted China berry trees to form his horizontal hedge rows.[10] The system of hillside hedging was advocated for a number of years by the influential *Southern Cultivator*.

Rather wide publicity was given to the plan practiced by David Nickols of Georgia in the 1870s and 1880s. He made comparatively broad hillside ditches with gentle grade. In some places they were completely level. Above these he maintained a strip of clover, timothy, or herd's grass. The grass or clover in some spots spread over both the ditch and the bank below it. The hillside ditch and bank together were about 6 feet wide and the uncultivated strip was another 6 feet wide. Nickols was much more particular than most farmers regarding the outlets of his hillside ditches. He preferred never to discharge them into roads, fence rows, or raw gullies, as was so often the prac-

[6] A. H. S., "Hill-Side Ditches," *Carolina Farmer* (Wilmington, N. C.), 1:208 (May 1869); and J., "Hill-Side Ditching, &c.," *Southern Cultivator*, 29:208–209 (June 1871).

[7] Pontifex, "How To Prevent Washes," *Southern Farm and Home*, 2:89–90 (January 1871); "How To Recover and Preserve Hill Lands," *Rural Carolinian* (Charleston, S. C.), 2:401–402 (April 1871); and "More About Hill-Side Hedging," *Fairfield Herald* (Winnsboro, S. C.), June 14, 1871.

[8] S. C., "To Keep Lands from Washing," *Southern Cultivator*, 29:129 (April 1871). See also an answer to this by V. A. McGinty, "To Prevent Lands from Washing," *ibid.*, 29:218–219 (June 1871), where the necessity for hill ditches is maintained.

[9] William Ellison, "On Horizontal Ploughing," *Southern Agriculturist*, 3:178–182 (April 1830); and Robert Watts, "On the Cotton and Pea Crop and Ploughing, &c.," *ibid.*, 8:452–456 (September 1835).

[10] "How To Recover and Preserve Hill Lands," *Rural Carolinian*, 2:401–402 (April 1871); and "Fencing, &c.," *Southern Cultivator*, 28:141 (May 1870).

tice. Instead, he made a series of wooden check dams across dry natural depressions in the fields, and the ditches were discharged into these. Where active gullies were used as outlets, these were also check-dammed and filled with brush. The outlets were also equipped with tile underdrains in places. Nickols' method of using strips of clover in combination with hillside ditches resembled modern strip-cropping practices.[11]

The structure now called the bench terrace was being developed contemporaneously with the various methods of hillside stripping, and before long it enjoyed a popularity far exceeding the latter. Bench terraces, when properly made, formed the hillside field into a series of steps. The bench terrace was accordingly a terrace in the true sense of the word, in contrast with the structure consisting primarily of waterway and rounded bank to which the term "terrace" was also applied.

When James Gregorie, an editor of the *Southern Agriculturist* of Charleston, first learned of horizontal plowing in 1829, he put forward the suggestion that this practice would not prevent damage from the heavier rains and that hill-land farmers would doubtless eventually adopt a system of terracing similar to that practiced in the hilly parts of Tuscany.[12] Unhappy experience at home rather than advice to learn from foreign examples, however, was the motivation behind the development of the bench terrace.

Although hillside ditching and contour plowing were less used in Virginia than in the States to the south, certain Virginia farmers developed designs resembling those used in later terracing practice. Doubtless in many instances the narrow bank of the hillside ditch, being uncultivable, was allowed to grow up to weeds or grass, and if the ditch above were neglected this might serve as a barrier for dirt washed or plowed from above, thus in time building a bench terrace. Some farmers, such as William L. Booker of Amelia County, Virginia, deliberately made a sod-covered bank and plowed the land above downhill, filling up the ditch, in this way making a structure similar to a terrace. He apparently did not call it by this name, however.[13]

Among the earlier farmers to use the term "terrace" was J. H. Cocke of Bremo, Fluvanna County, Virginia. The purpose of Cocke's system was to convert the rolling upland fields into level surfaces that would retain and absorb rainfall and be as productive as the lowland meadows. He called his practice the "strictly horizontal broad terracing system." The structures were terraces in the true sense of the word, forming a series of steps on the face of the slope. They were laid out exactly on the contour, without fall from one end to the other, and had a level upper surface and a steep face. Cocke made his terraces for irrigation purposes. He seems to have practiced this system in the 1840s and 1850s.[14]

Just before the Civil War, a Mr. Bancroft of Athens, Georgia, made terraces on the contour for his gardens. They were made with the aid of the hillside plow, shovel, and scraper. The upper surfaces sloped inward slightly toward the hill, and there was a small ditch at the base of the next terrace above to carry off excess water. Bancroft set fruit trees and strawberries on the outer edge of the terrace and planted vegetables on the inner space.[15] Even as late as 1870 it was believed in some quarters that the making of true terraces was too expensive except for gardens.

In the late 1860s and early 1870s certain farmers in Georgia, South Carolina, and perhaps elsewhere commenced to terrace their land. One Georgia practice was to lay off a ditch or waterway about 3 feet wide on an exact contour with a bank above the ditch. The dirt from above the bank was allowed to wash or be plowed down against it, thus forming the level terrace gradually. One farmer, having abandoned the ante-bellum graded-ditch system for this, called it the "Level or Reconstructed System."[16]

The method of bench terracing developed by a Mr. Chisholm and W. P. Orme on a plantation at

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[11] David Nickols, *Preservation and Protection of Cultivated Lands from Surface Washing: A New System of Hillside Ditching* (Atlanta, 1883).

[12] Editorial comment on the article by Eldred Simkins, "Back Country Cultivation: On Horizontal Ploughing in the Upper and Middle Country," *Southern Agriculturist*, 2:385–391 (September 1829).

[13] [Edmund Ruffin], "Graduated or Guard Ditches for Hillsides; Sketch of a Discussion at a Meeting of the Powhatan Farmer's Club," *Southern Planter*, 14:225–231 (August 1854).

[14] J. H. Cocke, Sr., *An Essay on Agriculture* (Bremo Bluff, Fluvanna Co., Va., n. d.).

[15] "Terraced Gardens, etc.," *Southern Cultivator*, 19:224–225 (July 1861).

[16] "To Prevent Land Washing," *The Plantation* (Atlanta, Ga.), 2:373 (July 8, 1871); T. J. McKie, "A Matter of Great Importance," *Southern Cultivator* 55(14):3 (July 15, 1897); and N. Hutchinson, "Grade Hill-Side Ditching vs. Level Hill-Side Ditching," *ibid.*, 29:338 (September 1871).

one time belonging to the former in Chambers County, in the Piedmont region of Alabama near the Georgia line, exercised considerable influence on contemporaries. One rolling field on this place had been ineffectively hillside-ditched at one time. The field had been cultivated, and erosion had progressed until it was considered worn out, and it was then abandoned. After a number of years Chisholm noticed that one of the old ditches had filled up and had become a dam for the soil washed from the land above, forming in effect a terrace. The accumulated washings supported a luxuriant growth of grasses and weeds. Benefiting by this example, Chisholm laid off contoured ridges across an adjoining field, so that these would become bench terraces also in a few years' time. He spaced the ridges 3 feet vertical distance apart and cultivated on the contour between the ridges. When Orme bought this place several years later, he was so impressed with the success of this method of terracing that he soon applied it to the entire plantation. It was claimed that, after a thirteen years' trial, beginning about 1870, the original terraced field showed few signs of erosion, although it had often been planted to cotton. Orme was secretary and treasurer of the Atlanta and West Point Railway, and through his position he may have been influential in spreading the news of this method. The Georgia State Department of Agriculture also published a paper on the subject.[17]

Some advocates of the system left narrow unplowed strips in the center of the horizontal ridges to prevent breakage the first year and as a further precaution sowed grass seed on the ridges. As the banks grew steeper on the lower side with the passage of time, no attempt was made to cultivate them, and they grew up naturally in grasses, weeds, and briars. The ridge or bank of the bench terrace thus resembled in some respects the hillside hedge. Indeed, the editor of the *Southern Cultivator* pointed out that the unplowed horizontal strips such as he had used and advocated for many years would build terraces effectively by stopping the soil on the upper side of the strips and "straining" the water that passed down the hill.[18] In theory, the bank was supposed to attain a height of about 3 feet. The eventual height of the banks in practice depended on the degree of slope, the methods of cultivation, the length of time the terraces were allowed to stand, and the vertical fall between terraces actually given. The steeper the slope and the older the terrace the higher the bank might become, and the bank might be built up by deliberately plowing down the soil from above. Bench terraces are to be found in South Carolina and elsewhere as much as 30 or 40 years old that are 6 feet or more in height on the lower side, on fields where the original slope was as much as 30 feet in a distance of 100 feet.

On the more gentle slopes or under methods of plowing that prevented the soil from moving down, the contoured ridge did not develop into a bench but retained much the same profile as when first constructed. This type of terrace was termed the level ridge type. Like the bank of the bench terrace, it was generally too narrow to permit cultivation on top, and it was allowed to grow up in grass and weeds. In many instances the ends of the terrace were closed so that the water either remained in the channel and soaked into the ground or flowed over the face of the terrace. In other instances a slight fall was given near the end of the channel so that the water could drain off. The level ridge terrace was used widely on the more level land and more permeable soils.

The terrace seems to have contended for favor with the hillside ditch for about fifteen or twenty years before firmly establishing its supremacy. Terracing is mentioned only infrequently in the survey of farming conditions in the Cotton States published as part of the Census of 1880, whereas horizontal plowing and hillside ditching receive numerous references.[19] By 1883, however, many articles on terracing were appearing in the agricultural press.

The former popularity of bench terraces is attested by the large number of bench-terrace systems still to be found in the southeast. There seems no doubt that plowing could be done with greater ease and fertilizer retained better on fields that were bench-terraced than on fields where the natural slope was maintained, if the slope was steep. It is probable, also, that moisture and soil were retained better. Bench terrace advocates,

[17] H. H. Cary, "Terracing," *Southern Cultivator*, 41(4):3 (April 1883); William P. Harden, "Horizontal Terracing, Report of the Georgia Agricultural Department," *ibid.*, 41(7):19 (July 1883); and "The Value of Terracing," *Fairfield News and Herald* (Winnsboro, S. C.), Oct. 13, 1886.

[18] "Terracing Land," *Southern Cultivator*, 41(4):16 (April 1883).

[19] U. S. Census Office, 10th Census, 1880, *Report on Cotton Production in the United States* (Washington, 1884), part 2.

however, claimed some advantages which the device did not possess.

The theory of the horizontal bench terrace was that the water would be held in place and soak into the ground to be used in subsequent dry periods and would not run off and carry the sediment with it directly down the slope or out through a graded ditch. According to this theory, excess water would gently spill over the bank of the terraces in a thin sheet and pass down the hill harmlessly. In practice the water did not behave as bench terrace enthusiasts hoped it would. The excess water that did not soak into the ground collected at low points along the terrace bank and broke over, causing rills on the face of the terrace bank. If the terrace were neglected these rills became gullies. Water falling over the bank from one bench to the next often undermined the bank and caused the surface of the lower bench to wash. As the level bench developed, the relatively infertile subsoil of the hillside was exposed on the uphill side of the bench and was spread downhill, covering the more fertile surface soil next to the terrace bank. It was claimed that the fertility of the entire surface was reduced in this way in many instances.[20] Perhaps the most frequent objections voiced against bench terraces were that they took too much land out of cultivation, obstructed cultivation, and harbored grass and weeds which easily spread from them to the remainder of the field. The necessity for some improved type of terrace became even more evident after the introduction of reapers, mowers, and tractors.

Development of the Broad-Base Terrace. Pioneer workers had attempted to construct hillside ditches or similar structures that would not obstruct farming operations and harbor weeds. Richard N. Venable of Prince Edward County, Virginia, designed structures that could be tilled with the remainder of the field, about the fourth decade of the nineteenth century. They were rounded beds 10 to 12 feet wide with water channels of equal width on the upper side.[21] Other farmers down through the years realized the advantages of broad banks and ditches. These earlier broad-base structures had comparatively steep grades about like those of the contemporary hillside ditches. The essential features of the modern types of broad-base terraces, on the other hand, are a broad low bank, a wide shallow ditch, and a gentle grade.

Priestly H. Mangum of Wake County, North Carolina, is usually credited with the invention of the broad-base cultivable terrace, but certain other farmers, faced with the problem of using farm machinery among hillside ditches, seem to have been thinking along similar lines at about the same time. The intellectual climate of the North Carolina farming community in the early 1880s was favorable to the growth of broad-base terracing ideas. The plan of one farmer of Cabarrus County, North Carolina, was to plow a land about 35 feet wide, and with a scraper build up a flattened mound on the down-slope side of the land, leaving a waterway in the center. The idea of constructing the mound by moving the dirt from the upper side appears to have been the same as that of the modern Nichols terrace.[22]

Priestly H. Mangum, Sr., according to his son, bought a wheat binder at a time when this machine were comparatively rare in North Carolina. When he used it in fields that had been hillside-ditched, he found that a large part of the crop was lost. He next attempted on one field to substitute wide grassed strips for ditches, but the slope was so great that these strips were ineffective. In 1885 he constructed his first terraces.[23] Mangum's terraces were made about 2 feet high and 6 feet broad, with a flat depression about 10 feet wide on the up-slope side. The grade was approximately 8 to 10 inches per 100 feet. Most of the terraces were discharged into wooded areas, but in one field a "canal," or wide ditch, was constructed to carry the discharge from the upper terraces to a stream bottom. Crop rows were often run across the terraces at an oblique angle. To prevent the terraces from being broken down by annual cultivation, it was found desirable, when plowing, to turn the furrows up the bank, making the back furrow along the ridge of the terrace. The plowing lands were shifted from time to time also to prevent too great a development of terrace or waterway.

Mangum's neighbors are said to have looked askance when he plowed down the traditional hillside ditches to make room for the new-fangled terraces, but before long they were coming to his

[20] "Hill Side Ditching and Terracing," *Southern Cultivator*, 41(5):10 (May 1883); "About Farm Terracing," *ibid.*, 41(7):8 (July 1883).

[21] A. W. Venable, "On Hill-Side Ditches," *Farmers' Register* (Petersburg, Va.), 5:752-753 (March 1838).

[22] "A 'Tar Heel' on Terraces and Ditches," *Southern Cultivator*, 41(9):6 (September 1883).

[23] P. H. Mangum, "My Father Invented It," *Country Gentleman*, 107(11):14, 73 (November 1937).

farm to admire and learn. Among those who made the pilgrimage were representatives of the North Carolina State College and Experiment Station in nearby Raleigh.[24] A report published by the station in 1888 advocating broad-base, cultivable "hillside ditches" seems to indicate that independent thinking on the subject had been done there also.[25] A decade after Mangum's first trials, the station published a full set of instructions for the making of terraces by his method.[26]

The younger Mangum came into possession of the farm after his father died, and he was also an enthusiastic advocate of the broad-base terrace. He continued to practice diversification. Cotton, corn, and wheat were raised for sale, and rotations of wheat following peas, corn following clover, and cotton after rye were practiced. Some fields were planted to cotton for several years in succession, but since these fields were well terraced, Mangum felt that there was no danger of erosion. About 1913 Mangum purchased a steam tractor. It was impossible to make sharp turns with such a heavy machine, and he tilled in straight lines across the terraces with it. In about two years' time some of the terraces had been allowed to deteriorate because of this method of plowing and tillage with the tractor, and Mangum intended to do away with most of them except on the steeper slopes, relying mainly upon frequent cover crops to prevent washing. Many of the original Mangum terraces seem to have been obliterated about this time.[27] During the period of high cotton prices, after the boll weevil had struck the lower South but before it had reached North Carolina, the diversified system on the farm was abandoned to some extent, and more cotton was planted. Either at this time or later, the terraces formerly plowed down were restored. There was an extensive system of terraces on the farm when I visited it in 1941. The Mangum terrace found most favor on farms practicing mixed culture, such as the Mangum farm in its earlier period, or on the more progressive of the cotton farms.

Other farmers and experiment station workers preferred the broad-base level terrace to the Mangum graded terrace. Such a structure was similar to the Mangum terrace in most respects except that it had no grade. It was found to be suitable for sandy soils and gentle topography in the Coastal Plain, but it had its advocates even in the Piedmont, and by 1915 its use was about as widespread as that of the graded terrace. After a survey of terracing practices in the Southeast, C. E. Ramser, drainage engineer of the Office of Experiment Stations in the United States Department of Agriculture, concluded that the broad-base terrace without grade was in general the best type of terrace for preventing erosion and building land, that it resulted in no waste of land, and was easy to cultivate. Variable grade terraces which increased in grade as they increased in length, found by Ramser in a few places, were also highly considered.[28]

In the first two decades of the twentieth century many of the bench terraces were plowed down in order to make room for farm machinery and broad-base terraces. This seems to have been especially true on the more progressive farms practicing mixed culture or in more gently rolling areas. A farmer of Anderson County, South Carolina, like Mangum, found that if a steam tractor was to be used, straight rows were necessary. He designed a terrace 18 to 24 feet broad to accommodate the use of the tractor.[29]

There was rather wide regional variation in terrace types. This was reflected to some extent in the recommendations of the different agricultural experiment stations. The early advocacy of the broad-base structures by the North Carolina station has been noted. On the other hand, F. H.

[24] P. H. Mangum, "Big Success of the Mangum Terrace," *American Agriculturist*, 91:105 (Jan. 25, 1913).

[25] J. R. Chamberlain, "Report of the Agriculturist," in North Carolina Agricultural Experiment Station, *Annual Report, 1889* (Raleigh, 1890), 115–117.

[26] F. E. Emery, "Hillside Terraces or Ditches," in North Carolina Agricultural Experiment Station, *Bulletin 121* (October 1895), 319–326.

[27] C. E. Ramser, Notes on Terrace Investigations, a manuscript loaned to me through the courtesy of Mr. Ramser. See also C. E. Ramser, "Developments in Terrace Spacing," *Agricultural Engineering*, 26:285–289, 291 (July 1945).

[28] Catawba, "Terracing Problems: How To Prevent the Destructive Washing of Land Considered," *Progressive Farmer* (Raleigh, N. C.), 19(47):2–3 (Jan. 10, 1905); F. R. Baker, *The Prevention and Control of Erosion in North Carolina, with Special Reference to Terracing* (North Carolina Agricultural Experiment Station, *Bulletin 236*, Raleigh, 1916), 20–21; C. E. Ramser, *Prevention of the Erosion of Farm Lands by Terracing* (U. S. Department of Agriculture, *Bulletin 512*, Washington, 1917), 30, and his Notes on Terrace Investigations.

[29] Ramser, Notes on Terrace Investigations.

H. Calhoun of the South Carolina station, as late as 1913, recommended the level bench terrace as most desirable for that State, although he recognized that the level ridge type was useful on slopes of less than 10 percent and on sandy porous soils and that the Mangum terrace was adapted to impervious soils where surface drainage was necessary.[30]

Localization of terrace types did not always conform to types of farming or differences in soils, however. As one station circular stated: "It is generally found that where one type of terrace has proved successful, it creates a circle of influence and most other terraces in the neighborhood are similar to it. . . . For instance, in one county or township, all of the terraces are likely to be falling terraces, while in another county, all may be level terraces."[31] Perhaps this tendency to uniformity of type could be traced in many cases to the influence of some individual who built terraces on a commercial basis. Many farmers entrusted the job of surveying the terrace lines and the initial building of the terraces to these men. These professionals sometimes had decided personal preferences as to the type of terrace built, whether narrow or broad-base, level or graded.[32]

Terracing Equipment. The rafter levels or similar instruments built on the same principle were the favored instruments in laying off terraces in many localities even after the turn of the twentieth century. The plumb line suspended from the center was replaced by a spirit level affixed to the crosspiece in such a way that it could be raised or lowered to indicate a grade. The rafter level could be used to obtain the vertical distance between terraces as well as the horizontal line.[33]

Manufactured leveling instruments were for some time beyond the financial means of the rank and file of farmers, but one type eventually came into rather common use. It consisted of a pair of sights, similar to gun sights, with a spirit level between them. This assemblage was mounted so that it could revolve freely on a tripod or a staff driven into the ground. The surveyor's rod and target was used with this instrument. In some localities this type of level was called a "terracing machine." Terraces could be laid off more accurately with the level and rod than with the rafter level. Later this open-sight level was replaced by one having a telescope, enabling the operator to sight the rod at a much greater distance than with the older type of instrument.[34]

Ordinary plows and various types of reversible moldboard hillside plows were used in throwing up the early terraces. Shortly after the Civil War one Georgia farmer used an instrument like a road scraper, or drag, to build up his banks.[35] Perhaps this was similar to a V-shaped wooden drag drawn by a team used in Cleveland County, North Carolina, about 1915. This latter was used in the making of broad-base terraces and was recommended by the United States Department of Agriculture.[36] The development of more elaborate special machines for throwing up terraces was also being undertaken by a group of progressive farmers in Cleveland County at the same time. One of these was a subsoil plow with a wing on either side that could be moved up or down to throw the dirt up to the terrace bank.[37]

So long as horse power alone was available the type of terrace builder that could be used was rather light, and the terrace that could be made was rather small. A large number of time-consuming trips were required with a V-shaped drag or other horse-drawn machine to grade a broad-base terrace properly. The adaptation of tractors to this work and the development of special tractor-drawn terracers within the last fifteen years have decreased the time required to make terraces and increased the efficiency of the work. The making of the modern channel-type terrace is done almost entirely by gasoline-driven machinery.[38]

On the other hand, the costs of such terracing machines are such that the individual farmer cannot usually afford them. He must have his terrac-

[30] F. H. H. Calhoun, *Gullying and Its Prevention* (South Carolina Agricultural Experiment Station, *Circular 20*, Clemson College, October 1913).

[31] Baker, *The Prevention and Control of Erosion in North Carolina*, 12.

[32] G. F. Hunnicutt, "Terracing," *Southern Cultivator*, 61(4):30 (Feb. 15, 1903); and Ramser, Notes on Terrace Investigations.

[33] "Terracing Land," *Southern Cultivator*, 41(4):16 (April 1883).

[34] H. H. Cary, "Terracing," *ibid.*, 41(4):3 (April 1883); W. S. Purifoy, "Terracing," *ibid.*, 47:178 (April 1889); see also advertisement in *Progressive Farmer*, 32:58 (Jan. 20, 1917).

[35] Colonus, "Grade Ditching," *Southern Cultivator*, 29:446–448 (December 1871).

[36] Ramser, *Prevention of the Erosion of Farm Lands by Terracing*, 35–37.

[37] Ramser, Notes on Terrace Investigations.

[38] C. L. Hamilton, *Terracing for Soil and Water Conservation* (U. S. Department of Agriculture, *Farmers' Bulletin 1789*, Washington, 1938).

ing done on contract by the owner of a machine, join with his neighbors in the cooperative purchase and operation of a machine, have it done by a local conservation association, or rely upon governmental assistance, county, State, or Federal, to aid him. The organization of soil conservation districts by local groups of farmers was undertaken to cope with problems such as this. Since 1938 all of the Southeastern States have passed enabling legislation for the formation of soil conservation districts, and the entire Piedmont is now included in such districts. The Soil Conservation Service of the United States Department of Agriculture furnishes technical assistance to the farmers belonging to soil conservation districts. Like the problem of soil conservation in general, the problem of terrace building has ceased to be the concern of the individual landowner alone and has become the concern of the community.

Role of Experiment Stations, Demonstration Agents, and United States Department of Agriculture. A few of the State departments of agriculture manifested some interest in the subject of terracing. Material on the subject was published by the Georgia State Department of Agriculture. F. T. Meacham, working with the North Carolina State Board of Agriculture, published an article on terracing in 1904 and assisted farmers in building terraces.[39] The North Carolina Geological and Economic Survey also interested itself in terracing in connection with its work on the broader phases of soil, water, and forest conservation.[40] In general, however, it was left to the State experiment stations and agricultural colleges and the United States Department of Agriculture to do most of the work in this field. The many publications of the experiment stations and colleges are noted elsewhere in this article. At first the experiment stations published bulletins and papers based on the observation and experience of progressive farmers or members of the station staffs.

The United States Department of Agriculture started to explore the possibilities of terracing at a comparatively late period. One of its first attempts to advise farmers on terrace construction advocated something akin to the level ridge terrace and received criticism from a champion of the bench terrace.[41] In 1900 James Wilson, Secretary of Agriculture, in an address to commissioners of agriculture of the Southern States said that the "recourse" to terracing was "doubtless wise" but that the seeding down of hillsides to grasses and legumes would be much more effectual.[42] Nevertheless, preliminary studies of terracing were undertaken by the Office of Experiment Stations of the Department of Agriculture in 1903 and 1904. The results of work undertaken by W. E. Herring in South Carolina and Georgia on erosion control by means of tile drainage and terracing was published in 1904 and 1905, and after about 1908 assistance and advice on terracing were given to farmers by the division of drainage investigations of the Office of Experiment Stations and later by the Bureau of Public Roads.

The next step in the Department's program of terrace investigation seems to have been a field trip made by C. E. Ramser through the Southeastern States in 1915 to study terracing methods. He visited farmers, experiment station workers, and State and county demonstration agents.[43] Much of Ramser's time was spent in the Piedmont region, but he also traveled as far west as Mississippi. The trip resulted in the first comprehensive publication by the Department of Agriculture on this subject: Bulletin No. 512, *Prevention of the Erosion of Farm Lands by Terracing* (1917). In this bulletin Ramser described the different types of terraces and evaluated the types with respect to various factors: amount of erosion, amount of land occupied by terraces, ease of cultivation, soil structure and texture, and slope. He also gave directions for building and maintaining terraces, based on the best current practice. This was the first of a series of publications of the Department of Agriculture embodying knowledge of improved techniques in methods of terrace maintenance and construction. In later years this information was not dependent on farmer practices alone but also

[39] F. T. Meacham, "Terracing and Other Means of Preventing Lands from Washing," North Carolina State Board of Agriculture, *Bulletin*, 25(10):27–31 (October 1904); and R. B. Sullivan, "The Terrace as a Soil Saver," *Progressive Farmer*, 22(34):16 (Oct. 3, 1907).

[40] W. W. Ashe, *Terracing of Farm Lands* (North Carolina Geological and Economic Survey, *Bulletin 17*, Raleigh, 1908).

[41] J. S. Newman, "What Is a Terrace?" *Southern Cultivator*, 55(7):3 (Apr. 1, 1897).

[42] James Wilson, "Southern Agricultural Problems," *Progressive Farmer*, 15(32):1 (Sept. 18, 1900).

[43] Ramser, Notes on Terrace Investigations. I am also indebted to Mr. Ramser for other material in the following three paragraphs, except where otherwise cited.

on results of investigations at the experiment stations.

Soil erosion experimental plots were established near Raleigh, North Carolina, by the division of drainage investigations of the Bureau of Public Roads, in cooperation with the North Carolina Agricultural Experiment Station, under the direction of F. O. Bartel in 1924. Terrace experiments were also carried on there. The need for experimental farms devoted entirely to erosion investigations was demonstrated there, and in 1929 ten such stations were established by Congressional act, one of them being located at Statesville, North Carolina. In 1935 these farms, together with other erosion control work of the United States Department of Agriculture, were placed under the newly created Soil Conservation Service.

Investigations initiated at several State experiment stations resulted in the designing of terraces that were constructed from the upper side, rather than from the lower side or both sides equally, as was done in making the Mangum or other early broad-base terraces. A pioneer in this new type of terrace was C. T. Ames of the Holly Springs Branch Experiment Station in Mississippi.[44] Terraces constructed from the upper side were also made at experiment stations in Missouri, Kansas, Ohio, and Washington. The Nichols terrace, which was adopted by the Soil Conservation Service and is now widely used throughout the Southeast, was developed as a result of investigations started by M. L. Nichols of the Alabama Polytechnic Institute at Auburn. The bank of the Nichols terrace is cultivated in such a way that it becomes very wide and low and in effect blends into the lower slope. The emphasis is upon the development of a broad waterway, instead of an embankment, and for this reason the Nichols terrace is designated as a "channel type." The principal advantage of this terrace is that it offers less obstruction to farm machinery than the older broad-base types.[45]

After the inauguration of the system of county farm demonstration agents and the Extension Service of the Department of Agriculture, increasing attention was devoted to educational work in terracing. After 1914 the State agricultural extension engineers and county agents built terraces for farmers and instructed them in terrace making and maintenance. The result was a considerable increase in the acreage of terraced land. In 1915 the Extension Service reported about 125,000 acres of land benefited by terraces and soil-saving dams in the southeastern region, including Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Virginia. In 1929 in the same region something like 700,000 acres were so protected.[46]

Among the pioneer county agents to spread the knowledge of terracing in the Piedmont region were J. F. Hart of Greene County, Georgia, and Dr. Gidney of Cleveland County, North Carolina. Hart laid out about 61 miles of broad-base level terraces in 1914. Gidney had apparently been a terrace enthusiast before he became farm demonstration agent and had succeeded in reclaiming his own 320-acre farm from gullies by a system of level terraces. By 1915 he had run level broad-base terraces on about 6,000 acres in Cleveland County.[47] At that time Cleveland was one of the best-terraced counties in the State, and was called "the county of terraces." Gidney was to a great degree responsible for the enlightened methods used there, and he seems to have inspired a group of farmers who were equally progressive in developing terracing methods and terracing equipment.

The work of the county agents, although valuable in many instances, was at first uncoordinated, and was based on their individual preferences or experiences, unsupported by a program of research to determine the best types of terraces for different conditions. In this respect the county agents merely supplemented the work of the semiprofessional terrace makers.

In the 1920s and early 1930s the extension work was further increased by the inauguration of terracing schools. These were held for a few days in the winter or spring under the auspices of some of the agricultural colleges. Farmers learned the techniques of terrace making, and the more proficient were given certificates. Many certificate holders did terracing on a commercial basis for their neighbors.[48]

Relation of Terracing to the Farming System. The Southern landowner of the post-bellum period

[44] C. T. Ames, *Report of the Work Done at Holly Springs Branch Experiment Station, 1913* (Mississippi Agricultural Experiment Station, *Bulletin 165*, Agricultural College, Miss., 1914).

[45] Hamilton, *Terracing for Soil and Water Conservation.*

[46] *Ibid.*, 4–5.

[47] Ramser, Notes on Terrace Investigations.

[48] F. H. Jeter, "Notes from North Carolina," *Southern Planter*, 88(8):2, 17 (Apr. 15, 1927).

who attempted to preserve his land by terracing or any other means under the prevailing system of tenancy and sharecropping was faced with a particularly knotty problem. At first he was forced to operate with only limited capital and with laborers who were unaccustomed to the benefits of freedom and who did not have financial interest in the land. Later, after the pattern of share cropping, tenancy, and the lien system had been set, the landlord's control over the use of his own land often became rather tenuous. The cropping-lien systems set a premium upon cash-crop production on small capital investment and discouraged experimentation with techniques that required long-range planning. The efforts to teach the methods of terrace construction and maintenance to poverty-stricken and ignorant small farmers and tenants therefore met with considerable obstacles.

Immediately following the Civil War there was a belief in some quarters that free Negro labor could not be depended upon to maintain hillside ditches and that some simpler methods of erosion control, perhaps hillside strips, would come into use.[49] As we have seen, hillside stripping did enjoy a limited popularity in this period, but in the long run the mechanical techniques of erosion control became even more elaborate rather than less so. This made it incumbent upon the farm owner to exercise as close supervision as possible over his croppers or other laborers. Landowners were far too prone, as one of them expressed it, to take an interest in their property only on "pay day." He declared that tenants, as part of the contract, should agree to work by the landlord's "rule" and that the landlord as part of his "rule" should personally see to it that tenants repaired terraces after every rain and in other respects took care of them properly.[50] Evidently the men who terraced successfully adopted some such plan as this, but many terraces were improperly made and poorly maintained by landlords and tenants alike.

The earlier complaints regarding inadequate construction of hillside ditches were re-echoed in respect to terraces. The editor of the *Southern Cultivator* complained in 1898 that farmers were not "skilled in the work" or did not appreciate the necessity for laying off terraces properly.[51] Although terracing was widespread in the Piedmont, Ramser concluded from his survey in 1915 that in only a few sections were efficient results obtained and that the many failures were due to unsuitable design, faulty construction, or improper maintenance. A study of terraces built by farmers before 1933 on a sample including 524 terraced fields comprising 14,257 acres in the lower South revealed that in a majority of cases there had been improper construction and that on 83 percent of the fields the terraces were not maintained correctly.[52]

The failure of terraces to do the job intended for them was used by one school of thought in the early years of the twentieth century as an argument for the abandonment of the practice entirely. Most prominent of this school, perhaps, was W. F. Massey, at different times professor in North Carolina State College, Virginia Piedmont farmer, and writer for the rural press. His practical experience as a farmer seems to have been in areas north of the cotton belt, but he insisted that his advice was applicable on cotton farms. Massey said that deep plowing and subsoiling should be practiced, making a bed of loose soil 15 inches deep, and that the crops should be cultivated level and shallow, without furrows between the rows where water could gather and form a gully-cutting head. Humus must also be incorporated in the soil. For this purpose rotations including cowpeas, rye, and crimson clover for manure and cover crops should be interspersed with the cash crops. Massey admitted that terraces could not be dispensed with immediately on cotton farms, since the fields had been wastefully tilled for so long that several seasons would be required to restore humus to the soil and renew its moisture-absorption capacity. When these objectives had been accomplished, however, the "hideous weed-grown lines" of terraces could be plowed down.[53] The terrace was for the present a necessary evil, thought Massey, and the Mangum terrace was the best specimen of a poor breed. He declared that "so long as the

[49] Francis Fontaine, "Study Nature—Hill-Side Ditching and Cheap Fertilization," *The Plantation*, 3:296–298 (May 1873).

[50] John M. Ingram, Jr., "Hill Side Ditching vs. Terracing," *Southern Cultivator*, 42:298 (September 1884).

[51] "Defective Terraces," *ibid.*, 46:17 (June 1, 1888).

[52] Arvy Carnes and W. A. Weld, "A Study of Old Farmer-Built Terraces," *Agricultural Engineering*, 22: 361–362, 366 (October 1941).

[53] W. F. Massey, "Rotation for a Cotton Farm—No. 3," *Progressive Farmer*, 22(24):9 (July 25, 1907), and "Why the Red Hills Wash," *Country Gentleman*, 72:878 (Sept. 19, 1907).

hills of the cotton country are kept plowed every year, year after year, and the plowing is done with a mule to a tooth pick, there must be some means to carry the water slowly down hill.... Mr. Mangum's terraces are the best thing of the sort...."[54]

Massey claimed that a number of Northern farmers who had settled in Georgia, as well as other farmers in North Carolina and Alabama, had followed his advice with marked success. Few progressive farmers and none of the experiment station workers would have questioned the desirability of deeper plowing and the cultivation of green manures and cover crops. In fact, about the earliest bulletin of the South Carolina station on bench terraces advocated that they be used in conjunction with pea crops and crimson clover as erosion preventives.[55] On the other hand, considerable objection was raised to Massey's idea that terraces should be done away with entirely. Some working farmers answered that in a climate where torrential downpours were frequent in summer, deep plowing alone was insufficient to prevent erosion, and that terraces were essential supplements.[56] In October 1915 the *Progressive Farmer* summed up the views of this school of thought in the following words: "It is idle to say that deep plowing will keep hill lands from washing; it is futile to say that all these lands should be kept in grass. Deep plowing and humus will not alone keep such lands from washing, and the time will never be when large areas of such lands all over the South will not be in clean cultured crops."[57]

Massey and the comparatively small number who believed with him that terracing was only a transitional device to a more perfect method of erosion control had set themselves against the prevailing trend. The terracing advocates were becoming more popular rather than less so. The farmer might plow down his old bench terraces or hillside ditches to replace them with broad-base structures, but he was not likely to abandon terracing entirely. The program advocated by Massey took no account of the broader aspects of the cotton farming economy. The tenancy and crop-lien systems and the poverty of many of the small farm owners discouraged long-range experiments with legumes and grasses or purchase of heavy plows and other equipment. The market for cotton was established, whereas any widespread change-over to forage crops and animal products, such as was implied in Massey's system, would have required the development of new markets.

There was also, perhaps, considerable truth in the assertion that deep plowing and filling the land with humus were not sufficient to prevent soil destruction in the Southern climate, especially in those years of the proposed rotation when cotton or corn was the crop. Otherwise Massey's program, in theory, was quite correct. It was a program for the future—for a time when urbanization in the Piedmont would furnish a local market for widely developed diversified agriculture. Massey's tendency to ignore the market conditions of his time and the cropper-lien system with which the farmer was faced gave his suggestions an air of unreality.

Critics of the Southern farmer berated him because of his backward and wasteful methods, often forgetting that he operated under a given set of economic and physical conditions that could not be changed at will. The fact that the farmers of the Piedmont and other Southern regions developed first the bench terrace and then the more advanced types of broad-base terraces adaptable to heavy field equipment proved that, within the limits of the prevailing system of farming, they could be progressive. The extent of the failure to maintain terraces adequately was a measure of the inability of the system as a whole to preserve the land, more than it was a proof of the undesirability of terracing. Whether it will become possible to dispense with terraces entirely as Piedmont agriculture becomes more diversified is a question which even yet is unanswered.

[54] W. F. Massey, "Terraces," *Southern Planter*, 74:261 (March 1913).

[55] J. S. Newman, *Protection and Improvement of Worn Soils* (South Carolina Agricultural Experiment Station, *Bulletin 32*, Greenville, 1897), 9–10.

[56] R. B. Sullivan, "The Terrace as a Soil Saver," *Progressive Farmer*, 22(34):16 (Oct. 3, 1907); and O. W. Blacknall, "Deep-Plowing Not a Substitute for Terracing," *ibid.*, 16.

[57] "The Cultivated Hill Lands Must Be Terraced," *ibid.*, 30:976 (Oct. 23, 1915).

THE EARLY IMPACT OF JAPAN UPON AMERICAN AGRICULTURE

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Americans in 1854 quite understandably viewed the opening of Japan by Commodore Perry that year as a fascinating chapter in the unfolding story of the impact of the West upon the East.[1] Generally overlooked, however, was the reaction of the East upon the West. The extensive report that Perry submitted to Congress contained ample evidence of the beginning of this reverse process of acculturation,[2] but, among contemporaries, few, save the scholarly, took the trouble to read it. Those who did found authoritative essays on a wide range of subjects prepared by the experts who accompanied the expedition, the report running the gamut of the natural sciences of the Western Pacific—mineralogy, ornithology, ichthyology, conchology, botany, etc. That five of the articles dealt with agriculture bespeaks the pervasive importance of the subject to that generation. But if agriculturists as a group were unacquainted with these writings, many, nevertheless, turned to Japan as a source of hitherto unknown seeds and plants to be tried out in their fields and gardens at the earliest opportunity. This response is strikingly revealed in the matter-of-fact entry in the diary of Martin W. Phillips, a Mississippi planter, for April 14, 1857: "Sowed Japan . . . peas today."[3]

Preeminently an agricultural nation, the United States of the 1850s had been concerning itself for some time with the problems of soil conservation and improvement. Edmund Ruffin bore the brunt of a campaign to rouse the farmers of Maryland and Virginia to the feasibility of using marl to restore the fertility of the soil. Commercial fertilizers made their debut in the 1840s, and the agricultural journals of that period bear witness to the widespread acceptance they found.

The restorative properties of legumes had been known and were acknowledged generally.[4] A wide variety of grasses for pasture or hay were grown as a result. Among them was the ubiquitous cowpea. "With the exception of corn blades, the cowpea was the most widely employed forage crop in the lower South, as well as in southeastern Virginia and eastern North Carolina."[5] Clover, too, had its devotees as a fertilizer-fodder crop since the eighteenth century. On the eve of the Perry Expedition agriculturists still debated the comparative value of peas and clover,[6] and they were yet ready to try new varieties of both.

The opening of Japan made available a multifarious flora that had not been systematically explored since Karl Peter Thunberg's magnificent work of the previous century.[7] Upon his return and at Perry's request, Dr. Daniel S. Green, surgeon of the expedition, wrote a short "Report upon the Agriculture of Japan" from notes and from memory, hoping that the essay might "afford some interest to our farmers, however incompletely handled, if from the novelty of the subject alone."[8] Of more than average interest are two lines near the end of the study in which Green observed that the Japanese had "a peculiar hairy-podded bean, growing upon a branching stem, called commonly Japan pea. . . ." He here officially heralded the beginning of an important episode in the history of American agriculture: the introduction of Japanese products.

One A. H. Ernst of Cincinnati had sent Japan

[1] This article was presented at the meeting of the Agricultural History Society with the American Historical Association in Washington, D. C., on Dec. 30, 1948.

[2] *Narrative of the Expedition of an American Squadron to the China Seas and Japan. . .* (33 Congress, 2 session, *House Executive Document 97*, 3 vols., Washington, 1856). The articles by the experts are in volume 2.

[3] Franklin L. Riley, ed., "Diary of a Mississippi Planter," in Mississippi Historical Society, *Publications*, 10:458 (1909). For this citation and a number of suggestions, I am indebted to Professor Richard B. Morris.

[4] Thomas Jefferson had long since experimented with peas as green manure. Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington, 1933), 2:802.

[5] *Ibid.*, 824.

[6] *The Plough, the Loom, and the Anvil*, 1:46–47 (July 1848).

[7] Karl Peter Thunberg, *Flora Japonica. . .* (Leipzig, 1784).

[8] *House Executive Document 97*, 2:81–88.

pea seeds to the Commissioner of Patents in 1852.[9] He had obtained them in 1850 from Japan via San Francisco, and they had then been introduced into Indiana and Ohio. The pea's apparent resistance to frost and drought was an important recommendation.[10] It was distributed publicly and was represented to be "adapted for profitable cultivation."[11] Soon the new plant appeared before the bar of American agricultural opinion.

A farmer of New Rochelle, New York, writing in 1854, prided himself on the fact that, despite his tardiness in getting his Japan peas planted (he thought "bean" was a better description), his yield was exceptionally high.[12] Other New Yorkers reported equally good results. S. D. Pratt of Pompey obtained a half pint from eight seeds and promised that they would be distributed in his vicinity because he felt they could be grown successfully in New York. Connecticut also observed the Japan pea produce favorable results.[13]

The agricultural section of the Patent Office shortly began to receive reports from all quarters of the country on the success of Japan pea culture. A man from Missouri indicated that the new pea was not only prolific but that it resisted insects and was "one of the finest looking vegetables in the garden."[14] An Ohio correspondent sent specimens of the Japan pea and was apparently so pleased with his oriental product that he asked the Patent Office to send him, among other foreign seeds, "the Foja [soya] bean from Japan."[15]

Criticism joined acclaim in a very short time, and caustic comments emerged on the pages of the farm journals. The *Granite Farmer* complained that the Japan pea might thrive in Tennessee and Ohio but "in New-Hampshire they are of no more value than the cotton plant or sugar cane."[16] But such a reaction was not the rule. Farmers continued to seek information about the pea, and they received ready answers from their confreres who had already experimented with it.[17] The replies indicated that if the pea had little flavor for the human palate, cattle, hogs, and chickens seemed to enjoy it.[18]

Cultivators were anxious to help broadcast their "find." One North Carolinian, in sending some samples to the Patent Office, wrote that he thought the pea was better suited to the South than to the North and was willing to send more seeds for distribution.[19] Yankees were equally generous: one, learning from a gentleman in Kentucky that the Patent Office was unable to send Japan peas, offered to furnish them gratis from his own supply.[20]

No section of the country lacked advocates of the Japanese legume. Virginia, Maryland, and Delaware all had enthusiastic supporters.[21] A Kentucky farmer declared it to be "one of the finest productions I ever saw" and predicted that it would "prove a great acquisition to the farmers of the Valley of the Mississippi."[22] "They are the most productive article I ever cultivated," testified a Pennsylvania grower.[23] The Old Northwest, too, beat the drums for the Japan pea, and it was considered ideally suited to the rich prairie loam and able to withstand frost without

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[9] U. S. Patent Office, *Report, 1852, Agriculture*, 448.

[10] *Ibid., 1853*, 224–225.

[11] *Ibid.*, v.

[12] *American Agriculturist*, 13:120 (Nov. 1, 1854).

[13] U. S. Patent Office, *Report, 1854, Agriculture*, 194. The official report asserted that the Japan pea had been "cultivated with remarkable success." *Ibid.*, xv.

[14] Letter from Frederick Munch, Marthasville, Mo., Nov. 25, 1855, in Letters Received by the Agricultural Section of the Patent Office, vol. 7, 1855, no. 1228, in the National Archives. Hereafter this source is cited as Letters Received.

[15] Letter from T. Worthington, Logan, Ohio, May 22, 1855, in *ibid.*, no. 211.

[16] *Country Gentleman*, 5:151 (Mar. 8, 1855). In the *Cultivator*, ser. 3, 5:29 (January 1857), a correspondent expressed doubt that the Japan pea would ripen in northern New York.

[17] *Country Gentleman*, 5:184, 232 (Mar. 22, Apr. 12, 1855). The latter also appeared in the *Cultivator*, ser. 3, 3:159 (May 1855).

[18] *Country Gentleman*, 7:144 (Feb. 28, 1856); also in *Cultivator*, ser. 3, 3:125–126 (April 1856). An editorial in the *American Agriculturist*, 16:10 (Jan. 7, 1857), stated that most of the experimenters had found the Japan pea worthless for culinary purposes.

[19] Letter from John J. Wycke, Henderson, N. C., May 31, 1856, in Letters Received, vol. 11, 1856, no. 641.

[20] Letter from John Danforth, New London, Conn., Mar. 18, 1856, in *ibid.*, no. 7.

[21] Letter from John Donahue, Harkins, Md., Feb. 14, 1856, in *ibid.*, vol. 10, 1856, no. 751; Letter from A. P. Osmond, Canterbury, Del., Feb. 13, 1858, in *ibid.*, vol. 20, 1858, no. 26; *Richmond Daily Whig*, Dec. 27, 1856; *American Agriculturist*, 16:10 (Jan. 7, 1857).

[22] Letter from John B. Herndon, Mayslick, Ky., Feb. 14, 1856, in Letters Received, vol. 10, 1856, no. 779.

[23] Letter from John Read, Huntington, Pa., Feb. 12, 1857, in *ibid.*, vol. 15, 1857, no. 795.

harm.[24] By 1858 an Ohioan reported that ether were three—not just one—varieties of Japan peas grown in the United States—red, green, and yellow—which had arrived via China.[25]

East Asia offered promise of many useful plants and foods. In the very year of the Perry expedition the Patent Office reported: "A considerable number of rare seeds, roots, and plants have already been obtained from China and Japan, and means have been adopted to increase that number hereafter. Some of these have been brought directly from those countries, through the care and attention of Commodore Perry, and various other individuals. Others have been obtained indirectly through European channels. They have all been placed in good hands, and as widely disseminated as practicable. It is hoped that they will prove productive of great benefit."[26]

So the search went on. The American Minister to China was authorized to spend up to $1,000 to get new seeds and plants, and his activities were of more than passing concern.[27] American agriculturists were interested in Japan's products and, in the spirit of the times, were willing to experiment.[28] One wrote to the Patent Office that he contemplated visiting China and Japan to collect rare species of fruits, vegetables, and seeds of trees and wondered if the Government was authorized or inclined to encourage him.[29] Very likely we will never be certain of the answer although we may surmise that it was negative.

Yet there was no lack of direct contact with Japanese agriculture; the successive American representatives to Japan were our links. Townsend Harris, the first envoy to Nippon, wrote an essay on "The Radish, and Fruits of Japan" which presented information that was at once new and revealing.[30] The radish, he found, appeared in several sizes, the largest being 30 inches long. Another variety was 18 inches long and 15 inches in circumference. The American garden radish was much superior in texture and in flavor, however, he declared. He was disappointed in the Japanese fruits, too, observing that little attention was paid to their cultivation, although the cherry and plum trees blossomed beautifully. The apricot and peach he found bitter to the taste.

But Harris had good tidings for the American pomologist, nevertheless:

> The only fruit that I have seen in Japan that particularly merits notice, is the kaki, a variety of *Diospyros* and belonging to the order *Ebenaceae*. It is really worthy of being introduced into the United States. Many kinds have been brought to me. One has a skin as thin as tissue paper, and the pulp resembles in flavor the Egyptian fig. Another variety has a thick rind and a finer pulp, while the taste strongly reminded me of the delicious mango of Siam and Bombay. The tree is very ornamental, and of rapid growth; it would no doubt, succeed in any part of the United States south of 37° of latitude. Unlike the persimmon of the United States, there is very little astringency in the skin of the fruit, and frost, which matures the persimmon greatly, injures the kaki. This fruit varies in size, but is always larger than its American relative, and some are seven inches in diameter; it is in season nearly three months. The Japanese dry it, when it will keep for some four months, and has a taste like that of the dried Smyrna fig.

In answering a Patent Office circular to American representatives abroad, Consul Harris also attempted to supply information for the Cotton Kingdom on the growing of the staple in Japan. The data he provided were "meagre and unsatisfactory," he admitted, but the Japanese concealed every detail, and they had "a system of deception unequalled in any part of the world."[31] His report, if not of practical use to American planters, is nevertheless of considerable interest. He discovered that the Japanese variety of cotton had been grown from time immemorial, that it was not exported, and that it was ginned by hand. It was not packed in bales. The fertility of the soil was replenished chiefly by the use of nightsoil "but oil-cake, fish refuse, the wash from Distilleries, & green soiling are also used." The chief blights encountered he found to be the "Lady Bug, excessive rain, and Typhoones."[32]

[24] Letter from G. Champley, Oxford, Ind., Jan. 7, 1856, in *ibid.*, vol. 10, 1856, no. 45; Letter from B. Z. Abell, Welchfield, Ohio, Jan. 15, 1857, in *ibid.*, vol. 15, 1857, no. 259; Letter from W. D. Lindsley, Sandusky, Ohio, Feb. 28, 1857, in *ibid.*, vol. 15, 1857, no. 1045.

[25] *Cultivator*, ser. 3, 6:47 (Feb. 1858).

[26] U. S. Patent Office, *Report, 1854, Agriculture*, vi.

[27] *Ibid., 1856*, iv–v.

[28] Letters from John Harold, secretary of Queens County Agricultural Society, Hempstead, N. Y., Sept. 15, 27, 1855, in Letters Received, vol. 7, 1855, no. 755 and 767.

[29] Letter from J. W. Ten Brook, Rockville, Ind., Jan. 14, 1857, in *ibid.*, vol. 15, 1857, no. 231.

[30] U. S. Patent Office, *Report, 1859, Agriculture*, 549–550.

[31] Letter from Townsend Harris, Simoda, Japan, July 18, 1857, in Letters Received, vol. 16, 1857, no. 240.

[32] Harris's answer to the circular in *ibid.*, vol. 16, 1857, no. 421–2.

More tangibly, Harris sent from his post a sample of wax and seeds of the wax tree (*Rhus succedanea*) that were gratefully accepted by the Patent Office.[33] The Government Experimental and Propagating Garden in Washington, by virtue of Harris's willing cooperation, could boast in 1859 of 21 camphor trees, 150 wax plants, 50 tung oil plants, and "*Oodung*, and other ornamental trees" —all from Japan.[34]

Transmitting agricultural information became a part of the job of representing America in the Land of the Rising Sun. Harris's successor, Robert H. Pruyn, continued the policy, and indeed improved on the means of execution. Thomas Hogg of Yorkville, a well-known florist, was appointed marshal of the American Embassy in Japan, and it was understood that he would "avail himself of whatever is new in horticulture in that country, and introduce there what will be new and of use to the Japanese."[35]

Results were soon in evidence. Hogg sent a number of plants among which was a very beautiful Japanese iris.[36] Pruyn himself sent new botanical specimens including several varieties of maple to the highly-regarded horticulturist, John Dingwall of Albany.[37] The next year, 1865, he sent bulbs and plants, among which was the Japan lily. "Its fragrance is too strong for a close apartment, and filled our office, with doors and windows all open, so as to be perceptible immediately on entering.[38] The greenhouses of the Massachusetts Agricultural College soon boasted home-grown Japan lilies.[39]

These were not the first Nipponese blossoms to come to America, however. The first seems to have been the Japanese wind flower, or *Anemone japonica*, which was sent to these shores from China by Robert Fortune, the distinguished British oriental traveler. The opinion obtained that here was a hardy perennial which "no garden should be without."[40] Two years later its beauty and sturdiness were still being extolled.[41]

A favorable reception was accorded the Japan pink, too, albeit its vigor was not one of its virtues. Its blossoms were 2 inches in diameter, splashed with crimson, white, and red. One grower deemed it better than the Chinese pink and certain to be as satisfactory "as the double zinnia or the Sardinian Carnation pink."[42]

In addition, in one way or another, a number of Japanese fruits found their way to the American table in the years after the official opening of the islands. The most spectacular was the Japan Apple Pie Melon, seeds of which were brought back by Perry. It was grown in such widely separated places as Santa Clara, California, and Athens, Georgia, its particular recommendation being that in taste it could not be distinguished from apple. In fact, on that score, it was alleged to fool nine out of ten.[43] One experimenter was certain that the fruit would not fool anybody and threw his product to his hogs.[44] However, while the argument went on,[45] so did the cultivation of the melon.[46] A Nebraska farmer went so far as to aver that "Emigrants to the west will do well to take a few seeds of this melon along with them, as it will fill a vacancy which otherwise might remain void."[47] At the rate of 15 cents for 50 seeds,[48] it was difficult to resist an attempt at cultivation.

The White Japan Muskmelon appears to have been established by 1861 although it took some years for it to catch on after Perry brought the seeds from the Orient. Contemporaries thought that it ought to be introduced in place of some of the inferior species of melon then under cultivation.[49] Again, the price of the seeds was low enough to permit experimentation. J. M. Thorburn and Company in New York offered them at 25 cents

[33] U. S. Patent Office, *Report, 1859, Agriculture*, 570.

[34] *Ibid.*, 14–15.

[35] *Country Gentleman*, 19:47 (Jan. 16, 1862).

[36] *Ibid.*, 26:159 (Sept. 7, 1865).

[37] *Ibid.*, 23:401 (June 23, 1864).

[38] *Ibid.*, 26:49 (July 20, 1865). The Japan lily appears to have been grown in the United States previously. *Cultivator*, ser. 3, 8:352 (November 1860).

[39] *Cultivator and Country Gentleman*, 30:368–369 (Dec. 5, 1867).

[40] *Country Gentleman*, 2:122 (Aug. 25, 1853).

[41] *Cultivator*, ser. 3, 3:366 (December 1855).

[42] The Japan pink apparently first arrived in 1859. *Country Gentleman*, 18:399 (Dec. 19, 1861). See also *ibid.*, 318 (Nov. 14, 1861).

[43] Article from *California Farmer* in *ibid.*, 11:56 (Jan. 21, 1858); and *ibid.*, 224 (Apr. 8, 1858).

[44] *Ibid.*, 17:239 (Apr. 11, 1861).

[45] *Ibid.*, 271 (Apr. 25, 1861).

[46] In Massachusetts the seeds sold bore the name True Japan Pie Melon. *Ibid.*, 261 (Apr. 18, 1861). See also advertisement of B. K. Bliss, Springfield, Mass., in *ibid.*, 198 (Mar. 14, 1861).

[47] *Ibid.*, 25:47 (Jan. 19, 1865).

[48] *Ibid.*, 17:198, 261 (Mar. 14, Apr. 18, 1861).

[49] It was "first introduced to the public by that enterprising horticulturist, William S. Carpenter, Esq." *Ibid.*, 23:79 (Feb. 4, 1864). One species was known as "the Arica." *Cultivator*, ser. 3, 6:48 (February 1858).

per package, while B. K. Bliss in Massachusetts sold them in 1867 at $4 per pound.[50] By 1868 Thorburn's price per package had dropped to 10 cents, but oddly enough the seeds were advertised, even after so many years, under the caption: "Novelties in Seeds!"[51]

Every kind of fruit grower could hope for improved varieties from Japan. Robert Fortune, for example, reported to the *Gardeners' Chronicle* of London that he had discovered a grape produced by the "Yeddo vine" that he thought would be much appreciated in England but "most certainly will be highly prized in the United States of America."[52]

Flowering shrubs of Japan pears were sold at very reasonable rates,[53] but were probably useful for ornamental purposes only, for Townsend Harris remarked on the tastelessness of the specimens he had sampled in the East.[54] The Japan Quince shrub, advertised on the basis of its attractiveness and hardiness, probably also found a ready sale over a period of years.[55]

Japanese grains seem not to have impressed American growers although they tried all the varieties they could secure. The New York State Agricultural Society raised Japanese barley from seeds furnished by the Patent Office but with indifferent results.[56] Even less successful but undoubtedly more interesting was the verdict on Japan spring wheat. Early in 1867 it was advertised as yielding 60 bushels to the acre and as having won a special award at the Pennsylvania and New Jersey State fairs in 1866. "This wheat is a new thing, and those that grow it first are bound to make money," ran the prospectus.[57] Less convinced but more experienced appears to have been the farmer who predicted that "purchasers of this wheat will make a dear bargain."[58] Others importuned the same advice, and it was the considered opinion of a magazine which had advertised the seeds that the product "is not a wheat at all and we have declined to advertise it further."[59] The following year an indignant Marylander informed the journal that despite its warning the previous year he had had almost phenomenal results, describing his crop as the most magnificent on which man had ever set eyes.[60] Whereupon the editor modified somewhat his previous opinion by avowing the plant to be not wheat but "probably" millet. The magazine admitted that the heads received as samples were large and the seeds not exorbitant in price. The plant was further described as a kind of "Sorghum or broom corn."[61]

More satisfactory all around was Japanese maize. Recommended for table use, it appears, nevertheless, to have had highly attractive ornamental qualities. Morris's *Practical Farmer* described it: "The variegation [of the foliage] begins to show when the plant is four inches high, and in a short time it is beautifully and evenly striped with alternate stripes of green and white, and in its earlier stages of growth is striped with rose color."[62] Primarily its appeal was aesthetic, and seeds were sold in small packets.[63]

The squash connoisseur also found something new. Declared to be the best of its class was the Yokohama, which was advertised under the enticing heading of "new, rare, or very desirable vegetables."[64] It was first offered for sale by James Hogg of New York City who had secured the seeds from his brother, Thomas, the marshal of Robert Pruyn's mission to Japan. Nothing less than superlatives described the new squash. Weighing between 6 and 12 pounds, the gourd, if we are to believe the undiscounted word of the seller, was superb, stewed or baked, had no fiber, resembled a sweet potato in flavor, and outdid any pumpkin for pies.[65] Ready availability undoubtedly helped broadcast the vegetable. Hogg's agents could be found in Boston, Marblehead, Springfield, Phila-

[50] *Country Gentleman*, 19:230 (Apr. 3, 1862); and *Cultivator and Country Gentleman*, 29:117 (Feb. 14, 1867).

[51] *Ibid.*, 31:256 (Apr. 2, 1868).

[52] Quoted in the *Country Gentleman*, 18:31 (July 11, 1861). "Yeddo" (sometimes Yedo or Jeddo) was the name for the city now known as Tokyo.

[53] *Ibid.*, 17:168 (Mar. 7, 1861).

[54] U. S. Patent Office, *Report, 1859, Agriculture*, 549.

[55] *Country Gentleman*, 21:181 (Mar. 12, 1863); and *Cultivator and Country Gentleman*, 29:231 (Apr. 4, 1867).

[56] Letter from V. P. Johnson, Albany, N. Y., July 28, 1855, in Letters Received, vol. 7, 1855, no. 589.

[57] *Cultivator and Country Gentleman*, 29:120 (Feb. 14, 1867).

[58] *Ibid.*, 144 (Feb. 28, 1867).

[59] *Ibid.*, 176–177 (Mar. 14, 1867).

[60] *Ibid.*, 31:128 (Feb. 20, 1868).

[61] *Ibid.*, 31:203 (Mar. 19, 1868).

[62] Quoted in *ibid.*, 29:49 (Jan. 17, 1867).

[63] *Ibid.*, 133, 193 (Feb. 21, Mar. 21, 1867).

[64] *Country Gentleman*, 25:181 (Mar. 16, 1865). See also *ibid.*, 23:181 (Mar. 17, 1864).

[65] *Ibid.*, 23:133 (Feb. 25, 1864).

delphia, Washington, Rochester, and Albany, in addition to four sellers in New York.

In view of this flood of novel seeds, it comes as no surprise to find that a new potato also made its appearance. A D. Boll of New York achieved a good deal of personal satisfaction and likely some profit from his introduction of the *Dioscorea japonica* into the United States. With an aplomb characteristic of the promoter-innovators of this era, he predicted that his product, by virtue of its taste and the size of its yield, was destined shortly to replace the potato. Originally, Boll wrote, the *dioscorea* migrated from Japan to North China. From there it found its way to the Jardin des Plantes in Paris in 1849 via the French consul in China who had come by some seeds through the kindness of a missionary friend. Boll saw the plants in the French capital and wrote that he expected shortly to have a few of them at his 50th Street establishment in New York.[66]

This account of the new tuber attracted wide attention. One agricultural society asked the Patent Office for seeds.[67] The answer is not extant, but the notation "no yams" is scrawled across a similar letter of inquiry of the following year.[68] A like reply went out to an inquirer at West Falmouth, Massachusetts, who had read of the potato in a *New York Tribune* article by a Flushing, Long Island, farmer.[69] Boll himself wrote to Washington that the *Dioscoreae japonicae* he had grown were 2 pounds and over in weight, observing that he had exhibited them at the fair of the American Institute held at the Crystal Palace in New York.[70] Before the end of 1855, however, the *Country Gentleman* was inquiring of its readers if the Dioscorea was a humbug and observed sarcastically that if only 50 percent of the claims for it were valid it would still be a valuable addition to American agriculture.[71]

In addition to the Dioscorea it should be noted in passing that Japanese trees also flourished in the ante-bellum United States.[72]

Of real and lasting importance was the introduction of Japan clover or lespedeza which has remained a productive pasture crop to our own day. Its original appearance in the United States has generally been placed about 1846. According to the United States Department of Agriculture it was in August of that year that Thomas C. Porter gathered a specimen at Monticello, Georgia, that is preserved to this day in the Gray Herbarium. The interest and diligence of a Colonel J. B. McGehee of Laurel Hill is credited with disseminating knowledge of the legume.[73]

Contemporary testimony seems to date the introduction of lespedeza after the opening of Japan. The *Cultivator and Country Gentleman*, as late as 1867, erred in attempting to identify a specimen sent from Salem, Alabama, by a planter who said he noticed it for the first time the year before.[74] Asa Gray, the best-known botanist of his generation, thereupon came to the rescue with his report that the new clover was multiplying at tremendous speed in Georgia, South Carolina, and Alabama. He declared that it was discovered in 1857 and already covered thousands of acres, "rooting out everything, even Bermuda grass." But, added Gray, "if it be a decent forage plant, as it well may be, this intruder, which takes such a liking to the poor soil of the south, will prove a real blessing to the country."[75] That judgment

[66] *Cultivator*, ser. 3, 3:107 (April 1855). This article also appeared in *DeBow's Review*, 18:616–617 (May 1855), and in the Thibodaux, La., *Minerva*, May 5, 1855, where it was reprinted from the *New York Evening Post*.

[67] Letter from John Law, corresponding secretary of the Vandenburgh Horticultural Society, Evansville, Ind., Oct. 25, 1856, in Letters Received, vol. 7, 1855, no. 913.

[68] Letter from Volney Burgess, Chatham, N. Y., Feb. 5, 1856, in *ibid.*, vol. 10, 1856, no. 627.

[69] Letter from A. G. Tobey, West Falmouth, Mass., Feb. 20, 1856, in *ibid.*, vol. 10, 1856, no. 867.

[70] Letter from D. Boll, New York City, June 9, 1856, in *ibid.*, vol. 11, 1856, no. 667.

[71] *Country Gentleman*, 6:300 (Nov. 8, 1855).

[72] The Pawlonia tree was grown as far south as Texas. See letter from J. M. Seymour of Galveston to John Adriance, July 31, 1847, in Adriance Papers, University of Texas, Austin (microfilm copy in Columbia University Library, Bancroft Foundation). "Japan Dark Green Yew," "Japan Weeping Cypress," "Japan Dwarf Cypress," "Juniper Japan," and "Arbor Vitae, Japan" were listed as commonly grown in the United States by a Brooklyn horticulturist in the *New York Weekly Tribune*, July 3, 1858.

[73] Lyman Carrier, *Lespedeza as a Forage Crop* (U. S. Department of Agriculture, *Farmers Bulletin 1143*, Washington, 1920), 3–4. See also U. S. Department of Agriculture, *Yearbook, 1937*, 1006–1008, and *ibid., 1948*, 709–711. The plant is commonly called by its scientific name, *Lespedeza striata*.

[74] *Cultivator and Country Gentleman*, 30:144, 305 (Aug. 29, Nov. 7, 1867).

[75] *Ibid.*, 369, 400 (Dec. 5, 19, 1867).

has been more than vindicated over the years. Not only has the clover acted as an important nitrogen fixer, but its nutritive value has been a boon to stock raisers.

Fowl fanciers were not neglected by the agricultural importers, either. The Japanese peafowl was acquired in England by John Gide of Woodstock, Connecticut, on behalf of P. T. Barnum who considered the birds occult enough to exhibit at his famous museum. Later they were sold at auction.[76] Japanese Frizzled or Crisp-Feathered Bantams made their debut on the American scene via England where they were exhibited at a poultry show in 1860. Characterized as "like the inhabitants of their native country, a very singular race of fowls," they held little promise of being regarded as anything more than pets.[77]

It seems quite apparent, then, that Japanese influence on American culture so often ascribed to the post-bellum years—and then merely in the realm of the fine arts—was actually well underway before and during the Civil War itself. It is not surprising that American agriculture should have been affected first. What is strange is that despite many recent studies of Japanese-American relations this vastly important aspect has been neglected.[78]

[76] *American Agriculturist*, 13:93, 121 (Oct. 18, Nov. 1, 1854).

[77] *Country Gentleman*, 23:29 (Jan. 14, 1864). See also *ibid.*, 23:93 (Feb. 11, 1864).

[78] Of interest, however, is Allan B. Cole, ed., *A Scientist with Perry in Japan* (Chapel Hill, 1947), the journal of Commodore Perry's "agriculturalist," Dr. James Morrow.

AMERICAN INTEREST IN WORLD AGRICULTURE, 1861–1865

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The interest of the United States Department of Agriculture in world agriculture developed early.[1] Technical collaboration with other countries and exportable surplus problems received much attention during its formative years.[2] International scientific exchanges had been supported by the Patent Office, and Isaac Newton, the first Commissioner of Agriculture, after reviewing the indebtedness of the American farm to older cultures, found that the Department "becomes a means of communication with the governments and peoples of all lands. . . . It strengthens our friendly relations abroad and at the same time uses its official power and influence to obtain whatever may advance the agricultural interests of our own country."[3]

Technical correspondence in wartime was not only an extension of previous policy but a means of combating Confederate propaganda and encouraging immigration to the United States.[4] The view of the Confederacy that Southern cotton, exclusively, was the world's king, as is now well known, was mistaken. The Union had no such deep-seated notion as to wheat. Emphasis on breadstuffs was, however, a desideratum of demonstrating Northern productive might. Some Northerners, in the years before the war, had discussed the limited nature of American resources. The evils of soil exhaustion had been justly remarked. John H. Klippart, secretary of the Ohio State Board of Agriculture, had gone beyond this by holding that efficient wheat production was possible in only a small part of the West. Because of soil conditions, he believed, acre yields beyond

[1] This article was presented at the meeting of the Agricultural History Society with the American Historical Association in Washington, D. C., on Dec. 30, 1948.

[2] On the early development of an exportable surplus, see Percy W. Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620–1860* (Washington, 1925), 196–199, 312. For a long-range view of its significance, see William J. Trimble, "Historical Aspects of the Surplus Food Production of the United States, 1862–1902," American Historical Association, *Annual Report, 1918*, 1:223–239.

[3] U. S. Department of Agriculture, *Report, 1862*, 22.

[4] On propaganda and counterpropaganda, see Frank L. Owsley, *King Cotton Diplomacy* (Chicago, 1931), 55–66; Jay Monaghan, *Diplomat in Carpet Slippers* (Indianapolis, 1945), 155–164.

Ohio would be lower than those in the East.[5] This position had been refuted by the 1860 federal census, and Lewis Bollman of Indiana pointed out for the Department that, with the growth of the rail net, production was mounting from wider and wider areas of fertile land.[6]

Much of the produce was finding an outlet in the United Kingdom where millers, in consequence of short crops at home, were importing large quantities of grain. Such facts as could be assembled in the first departmental report appeared to indicate that leadership over eastern Europe in the British market resulted from American technical progress. A great part of the British import of grain from Russia was received through Prussia, but quantities also came from the Crimea. After considering the fact that Crimean grain shipments during warm months might become heated in the Black Sea, the statistician of the Department of Agriculture stressed the relative superiority of the transportation system between American grain fields and British ports. He concluded that "however great may be the capacity of Russia to grow wheat, that nation will not become our rival in supplying the English demand for breadstuffs."[7] To furnish an authoritative picture of American resources, President Lincoln thought in the autumn of 1861 of including Joseph C. G. Kennedy, an international statistical authority, among political agents abroad. Kennedy could not afford to give up his home activities, but he accepted the secretaryship of the American commission for a British Exhibition of the Industry of All Nations scheduled for 1862 at London.[8]

Agricultural machinery, particularly the reaper of Cyrus Hall McCormick, had made an excellent showing at a British exhibition a decade earlier, and it was thought that a more comprehensive demonstration would be appropriate on this occasion.[9] Secretary of State William H. Seward had been urged by Joseph Henry of the Smithsonian Institution and Alexander Bache of the Coast Survey to arrange for presentation of displays, and President Lincoln, in forwarding the papers to Congress, held: "As the citizens of the United States may justly pride themselves upon their efficiency in the industrial arts, it is desirable that they should have proper facilities toward taking part."[10]

Congress provided a federal agent, but it was not prepared to finance the traveling expenses of representatives or the costs of transporting displays.[11] The American Commission including Seward and Klippart, with Benjamin P. Johnson of the New York State Agricultural Society as chairman, had named State agents and listed potential exhibitors in fifteen States. When their request for funds came up for debate, Congress was worried over the poor progress of the Union on the battlefield and also annoyed at England because the British government had protested the removal of Confederate political agents from the mail steamer, *Trent*.[12] While Representative Thaddeus Stevens argued that Americans had gained by the earlier showing of agricultural machinery in Britain, Roscoe Conkling of New York and Owen Lovejoy of Illinois referred strongly to the English attitude on the *Trent* affair.[13] A sectional issue was raised when Senator James Grimes of Iowa asked Senator Charles Sumner of the Foreign Relations Committee to name the Westerners on the commission. Enumeration of western agents, including Leland Stanford, failed to allay opposition. Before defeat on January 31, 1862, by a vote of 17 to 22, Senator Henry Lane of Indiana, referring to the exhibition of 1851, commented: "The sword and the cannon are the reapers now and the rebels are the harvest, and to that purpose I shall devote my attention."[14]

Though the number of exhibits that America

[5] John H. Klippart, *The Wheat Plant* (New York, 1860), 300–306.

[6] U. S. Department of Agriculture, *Report, 1862*, 67.

[7] *Ibid.*, 549. As Prussia was a deficit area as to wheat production, its exports to Great Britain were imported from Russia. *Ibid.*, 72.

[8] Thurlow Weed, *Autobiography*, ed. by Harriet A. Weed (Boston, 1883), 1:634.

[9] On agricultural displays in 1851, see William T. Hutchinson, *Cyrus Hall McCormick* (New York, 1930), 1:382–394.

[10] Joseph Henry to Alexander Dallas Bache, Apr. 11, 1861, in Bache Papers, Huntington Library; 37 Congress, 1 session, *House Executive Document 8*, 1.

[11] A joint resolution, becoming law without debate in July 1861, provided $2,000 for a federal agent and gave authority to the President to constitute a commission. *Statutes at Large*, 12(1861):328; 37 Congress, 1 session, *House Executive Document 15*, 3.

[12] The commission had been informed by the Navy Department that no public vessel could be spared to carry displays to England. 37 Congress, 2 session, *House Executive Document 25*, 3.

[13] *Congressional Globe*, 37 Congress, 2 session, 332–333.

[14] *Ibid.*, 581.

might have sent was greatly cut, the occasion was of importance to farm leaders. Exhibitors, some of whom had already shipped displays, made up a purse for costs of participation, and the British graciously reopened the show to American entries. Along with Benjamin P. Johnson went Ezra Cornell and other agriculturists. After visiting the experimental farm at Rothamsted, the Americans crossed the English Channel to view agricultural trials under the direction of the Imperial Société d'Agriculture at Grignon. Cornell found much in England which would be of use to American farmers. Matters of particular interest included methods of seed drilling, the growing of rape for stock feed, and the use of light fences. Harvesting, he observed, was a costly process abroad. Europeans, also, appreciated the relative efficiency of American methods. McCormick's machine won an award in France as well as at London. Other American devices were pumps, mowers, plows, and milking machines. A California manufacture, the Hansbrow pump, received a prize medal. John W. Hoyt of the Wisconsin State Agricultural Society computed for the Department that in the American showing the proportion of awards to entries was larger than that for any other nation.[15]

Other opportunities for demonstrating the strength of the Union soon appeared. The London *Times*, more impressed in 1862 by Confederate victories than by Northern grain shipments or the showing at London, had declared that its readers were no longer "stunned every quarter of a year with the tremendous totals of American territory, population, and wealth, computed to come due, thirty, sixty, a hundred years hence."[16] Answers by the federal government included encouragement to donation of food supplies as relief for unemployed British factory hands, the education of diplomats by a tour of western production fields, and support to participation during the summer of 1863 in an agricultural exhibition at Hamburg and a statistical congress at Berlin.[17]

The fact that a repulse in American grain production happened to coincide with a turn of Union fortunes on the battlefield lent point to agricultural exhibits on the German occasions. One of the foreign diplomats, after visiting wheat fields and warehouses, reported that the resources of the North appeared "practically inexhaustible."[18] But drains of manpower were being felt in agriculture, and, though the crop of 1863 was large by prewar standards, it was smaller than that of the preceding year.[19] Donations of flour, rice, and bacon, moreover, moved abroad in a period when statistics of the Treasury Department indicated that grain exports through regular channels had entered a decline.

Attitudes in the House Committee on Foreign Affairs and the Committee on Agriculture were not unfavorable toward a recommendation by President Lincoln that provision be made for a commissioner to Hamburg. A bill introduced by John Crittenden in February 1862 had included $5,000 for traveling expenses and a like sum for transporting and exhibiting displays. In presenting the measure, Crittenden stated that the committee thought "it would be, perhaps, politic, to keep up the social international relations of this country abroad." Lovejoy was not unfavorably disposed, but Frederick, brother of Roscoe Conkling, held the objection to an appropriation for the London exhibition as a diversion of funds from the war effort likewise applicable to this German occasion. Eminent citizens, he pointed out, planned to attend. "A simple endorsement of these gentlemen by the State Department or by the Department of Agriculture will, I am satisfied, answer all the desired ends." Crittenden's resolution was referred to the Committee of the Whole on the State of the Union and there was lost.[20]

Agitation in support of participation continued.

[15] Ezra Cornell to Luther H. Tucker, Aug. 25, 1862, in New York State Agricultural Society, *Transactions, 1862*, 115–117; 38 Congress, 1 session, *House Executive Document 1, passim;* U. S. Department of Agriculture, *Report, 1862*, 36.

[16] *The Times* (London), Aug. 15, 1862.

[17] In encouraging shipments of flour, bacon, and rice for distribution to the unemployed as food relief, Seward cooperated with New York and Philadelphia businessmen. Women in Manchester carried away flour in their aprons from a railway carload consigned by Lancashire sympathizers in Wisconsin. Martin P. Claussen, "Peace Factors in Anglo-American Relations, 1861–1865," *Mississippi Valley Historical Review*, 26:521 (March 1940); Monaghan, *Diplomat in Carpet Slippers*, 287.

[18] Frederick W. Seward, *Reminiscences of a War-Time Statesman and Diplomat, 1830–1915* (New York, 1916), 237.

[19] William T. Hutchinson, "The Reaper Industry and Midwestern Agriculture, 1855–75," in *Essays in Honor of William E. Dodd*, ed. by Avery Craven (Chicago, 1935), 119–120; Frederick Merk, *Economic History of Wisconsin During the Civil War Decade* (Madison, 1916), 45–46.

[20] *Congressional Globe*, 37 Congress, 3 session, 883.

Hamburg was a great emigration point, and the American Minister to Denmark urged representation in the interest of swelling manpower in the United States.[21] Charles Macdonald, an American merchant, cooperated with the German Agricultural Society and Baron Ernst von Merck, the sponsors of this Internationale Landwirtschaftliche Ausstellung.[22] From New York, where a group of German-American citizens collected a large variety of agricultural implements, thousands of leaflets, advertising opportunities for contestants, were mailed to all parts of the country. Cash contributions were made by a merchant, Alexander T. Stewart, and a banker, Jay Cooke. Several States provided commissions to care for the displays of their citizenry. For Commissioner of the United States, the State Department named an Indiana political leader, Joseph A. Wright, who had long been active in the promotion of international plant and seed exchanges.[23]

At the Hamburg testing grounds Americans met contestants from thirty-three nations. Great Britain, the leading exhibitor, had three sheds of machinery to one from the United States. Steam plowing had been of personal interest to President Lincoln, and Wright stressed in his report the several English devices displayed for this purpose.[24] Believing that "the time is not far distant when many portions of our country will require this wonderful element," he discussed with a British firm the possibility of exhibiting their plowing apparatus in America.[25] Among reapers that of McCormick again took a medal. Several other American machines and implements won awards. In the livestock grouping, Merino sheep, entered by George Campbell of Vermont, took two first premiums in a class of 350 entries. One of these was for length of staple, and the other was for weight of fleece. The merits of these animals, according to Daniel Needham of Vermont, was firmly established when no European was willing to compete with Campbell in a contest for the heaviest fleece sheared on the spot.[26]

Accounts of the exhibition appeared in the public press and in the official report of the Department. A correspondent of the *Prairie Farmer* expressed a hope that the Union armies might be as victorious on the battlefield as Campbell and McCormick were in the German trials.[27] Wright's report, after submission to President Lincoln, was transmitted to Congress and printed in full in the *Daily Morning Chronicle*. Wright had understood that he would receive no remuneration for his services, but the President thought his effort to have been so worthwhile that Congress should reimburse him. The House, however, did not follow this suggestion.[28] Needham, who reported the exhibition for the Department, was somewhat critical of a number of foreign displays. He had a good word in passing for the Scandinavian countries and for Canada, Uruguay, and Venezuela. In view of their exhibits, "they looked larger and more important than they ever looked before." As to the exhibits of Great Britain, he held that America might well learn a lesson. "That a nation making such a demonstration should wield an influence of fearful magnitude over the governments of the world is a matter of little surprise. That America could have made a demonstration of equal magnitude and merit, no person conversant with its resources and the skill and energy of its people can entertain a doubt."[29]

Inquiries from foreign agriculturists in the year following the exhibition led a representative of a leading agricultural export firm in New York to maintain that "owing to the impulse given by the Hamburg fair to various industrial pursuits in our country, the United States will be benefited, in less than five years, to the extent of millions."[30] A number of American implements and machines including the German contributions from New York and the McCormick reaper remained in Hamburg as a permanent museum.[31] Thus buyers

[21] B. R. Wood to William H. Seward, Jan. 27, 1863, in *Papers Relating to Foreign Affairs of the United States, 1863*, 1098.

[22] James H. Anderson to William H. Seward, Dec. 10, 1862, in State Department Records, U. S. National Archives.

[23] William H. Seward to Joseph A. Wright, Mar. 28, 1863, in U. S. Department of Agriculture, *Report, 1863*, 20.

[24] 38 Congress, 1 session, *House Executive Document 28;* Joseph A. Wright to Abraham Lincoln, in *Daily Morning Chronicle* (Washington), Jan. 21, 1864. On Lincoln and the steam plow, see Everett E. Edwards, *Washington, Jefferson, Lincoln and Agriculture* (Washington, 1937), 79–88.

[25] The economy of steam plowing is evaluated in the U. S. Department of Agriculture, *Report, 1863*, 420–422.

[26] *Ibid.*, 29.

[27] *Prairie Farmer*, 28:88 (Aug. 8, 1863).

[28] 38 Congress, 1 session, *House Executive Document 28*, 1.

[29] U. S. Department of Agriculture, *Report, 1863*, 25.

[30] *Ibid.*, 29.

[31] *Ibid.*, 30; *Daily Morning Chronicle* (Washington), Jan. 21, 1864.

visiting the port could see samples of American stock, and emigrants had opportunity to acquaint themselves with American ways before leaving the homeland. Instances of tools and Merino sheep from America on German farms were reported by Klippart, who, on commissions from the Ohio State Board of Agriculture and the Department of Agriculture, made in 1865 a survey of Prussian progress in agricultural education and technology. With a type of American milking machine, made with rubber cups which broke easily, the Germans had some trouble, but plows, reapers, and other implements were giving effective service.[32]

In setting forth federal strength at Berlin, Samuel B. Ruggles, a New York lawyer who was the official delegate to the statistical congress, made no mention of declining wheat exports from the United States. Baron Gerolt, the Prussian Minister, in his invitation of July 1863, had expressed the opinion that participation by American commissioners would be much appreciated because they might answer "eager inquiries" as to the effects of the war and its "probable bearing upon the future progress and resources of the United States."[33]

Ruggles, long a representative of the canal and railroad interests of New York and the West, had returned in 1862 from a western tour which prepared him to speak on "ability to feed the world," on "King Cotton dethroned and King Breadstuffs crowned as his successor."[34] Seeking federal support for deepening the Erie Canal as a wartime measure, he had visited Washington, and according to Attorney General Bates he had threatened Lincoln with the wrath of the New York legislature if this action were not taken.[35] Such differences as he may have had with the administration were apparently forgotten at the time of his appointment to go to Berlin. Before leaving, he was "orally" directed by President Lincoln and by Seward to present such evidences of the resources of the United States as would exhibit "the ability of the National Government fully to maintain its legitimate authority in the struggle then pending, and to save the American Union from dismemberment and ruin." With him, as an unofficial delegate, traveled Ezekiel B. Elliott of the American Statistical Association, who was to report on aspects of Union military statistics.[36]

Census and trade figures were used to buttress propositions that the United States could supply all the food and all the gold the world required and do it "better and cheaper than if disintegrated."[37] With regard to precious metals Ruggles suggested that a fact-finding body be established as to potential production in the United States, Great Britain, and Russia.[38] As to foodstuffs, he held that a general famine was impossible now that America, if necessary, could feed Europe for centuries to come. Statesmen should ponder this fact and its consequences in the "increased industry, the increased happiness, and the assured peace of the world."[39] To exemplify this proposition he gave statistics on the westward movement of population and on the power of the transportation system "to practically abolish the distance" between the interior and the seaboard.

It was Ruggles' hope that census figures would help the congress in what might become a very important duty, namely the classification of reports from various countries to present in scientific form "the comparative anatomy of nations."[40] Graphic terminology was used in describing the magnitude of American crops. Synoptic tables of wheat production were to be prepared, under American auspices, for the report of a French

[32] John H. Klippart, "Report of an Agricultural Tour in Europe," Ohio State Board of Agriculture, *Report, 1865*, 23, 65, 150.

[33] Baron von Gerolt to William H. Seward, July 27, 1863, in State Department Records, U. S. National Archives.

[34] The Diary of George Templeton Strong, 1835–1875, entry for July 31, 1862 (microfilm copy in New York Public Library).

[35] Edward Bates, *The Diary of Edward Bates, 1859–1866*, ed. by Howard K. Beale (Washington, 1933), 267. A suggestion that Ruggles had no personal antagonism toward Lincoln is made by D. G. Brinton Thompson, *Ruggles of New York* (New York, 1946), 135–136.

[36] 42 Congress, 1 session, *Senate Document 7*, 7–8. When the invitation to Berlin was received the Senate had recessed. Ruggles was provided with a per diem expense account. William H. Seward to Samuel B. Ruggles, Aug. 14, 1863, in State Department Records, U. S. National Archives. Ezekiel B. Elliott reported on casualties and the Sanitary Commission in his book, *On the Military Statistics of the United States of America* (Berlin, 1863), *passim*.

[37] Strong Diary, Aug. 18, 1863.

[38] Samuel B. Ruggles, *Resources of the United States* (New York, 1864), 6–7, 27–28; *Reports on the Resources of the United States and on a Uniform System of Weights, Measures and Coins* (Albany, 1864), *passim*.

[39] Ruggles, *Resources of the United States*, 23.

[40] *Ibid.*, 12.

international exhibition in 1867 and for the meeting in 1869 of the statistical congress at The Hague. At the close of the Berlin meeting, Ruggles made progress in this direction by traveling eastward for information on the gold resources of Russia and on the cereal exports from her agricultural interior, which, he pointed out, "strikingly" resembled, in geographical development and relative position, the central food-producing region of the United States.[41]

It was left to the Department of Agriculture to explain falling United States wheat exports in the face of large harvests. Foreign and domestic crop reporting experience had been utilized to set up tables of American production, which, the Commissioner hoped, would operate like "the regulator of a steam-engine" and "do much to prevent either a deficiency or its opposite."[42] Larger wheat crops in the United Kingdom, the departmental statistician, Jacob R. Dodge, noted, had a bearing on demand for American exports. The distribution of British wheat imports was also analyzed.

Further data on Russian wheat production had been assembled. Farm machinery manufacturers had begun a drive on the Russian market.[43] Now that the serfs had been freed it was thought that larger use would be made of mechanical devices. As to the Anglo-American grain trade, Dodge commented: "So long as the United States are superior [to Russia] as a consumer, it can regulate the conditions of mutual trade. But still Russian consumption, too, will increase with its progress in agriculture." Revolutions, he concluded, "may retard Russian progress, and general European wars may continue our supremacy, but an expectation of these should not divert our minds from a development of that market which is our best and most reliable one—the home market."[44]

The view that Russia might be a serious rival was borne out the following year when Russian wheat mounted over that from the United States in British imports. The Department forthwith instituted a system of correspondence with consuls abroad to gather information on foreign agriculture and to facilitate exchange of industrial statistics. Tabulation of American agricultural shipments

Movements of Wheat, 1861–1866

(in millions of bushels)

United States Crop and Exports

Year	*1861*	*1862*	*1863*	*1864*	*1865*	*1866*
Apparent use and carryover	—	118	118	117	127	136
Total exports	50	59	55	43	21	15
Estimated harvests	—	177	173	160	148	151

United Kingdom Crop and Imports

Year	*1861*	*1862*	*1863*	*1864*	*1865*	*1866*
Estimated harvests	88	98	111	143	129	111
Imports from the United States	28	40	21	18	7	1
Imports from Russia and Prussia	16	22	16	18	25	25
Imports from other sources	23	29	18	15	15	27
Estimated harvests and total imports	155	189	166	194	176	164

Sources: The crop estimates for the northern United States are from the U. S. Commissioner of Agriculture, *Report, 1863*, 602, *1865*, 54, *1866*, 51. The American exports are from *ibid., 1862*, 609–610, *1865*, 82, and *Report of the Commerce and Navigation of the United States, 1863*, 18.

The British crop estimates are from J. B. Lawes and J. H. Gilbert in the Royal Agricultural Society of England, *Journal, 1868*, 396; and the British imports from H. Evershed in *ibid., 1869*, 196–197.

British exports and American imports are omitted. American exports of flour are converted to wheat at 4½ bushels to the barrel.

These approximations indicated the high level of American resources in the early part of the war, and, as Louis Bernard Schmidt pointed out in the *Iowa Journal of History and Politics*, 16:400 (July 1918), the great need of the United Kingdom for wheat. Opinion as to whether this need affected British diplomacy is summarized by Eli Ginzberg in *Agricultural History*, 10:147 (October 1936).

led the statistician to comment: "With such a decreased export trade as is seen in this table let farmers beware of credits at the stores. *Individual and national economy were never more demanded than now.*"[45]

[41] *Ibid.*, 30; 42 Congress, 1 session, *Senate Document 7*, 62–73.

[42] U. S. Department of Agriculture, *Report, 1864*, 9.

[43] In 1860 the Consul General of Russia had requested a model of the McCormick reaper for the Imperial Agricultural Museum at St. Petersburg. The Walter A. Wood Company claimed to have sent a number of machines to Russia. Hutchinson, *Cyrus Hall McCormick*, 2:417, 427.

[44] U. S. Department of Agriculture, *Report, 1863*, 612.

[45] *Ibid., 1864*, 487, 599.

Attention was paid to foreign agricultural resources in planning for diversification and conservation of crops. Oversea methods of producing flax, sorghum, and beet sugar were noted. A list was compiled of tree crops, drugs, and tropical fruits which might be advantageous for small Southern farmers in the postwar years. To aid in testing the qualities of exotics, Congress was requested to appropriate for an experimental garden, a tropical conservatory, and an agricultural museum which might serve for animals as well as plants.[46]

In the interest of meat conservation, farmers were called upon to decrease the slaughter of calves and to raise more cattle.[47] The way in which importation of English cattle had helped improve American stock was remarked by the Commissioner, and livestock men were given opportunity through the departmental reports to compare their methods with those used on cattle ranges in Argentina and Australia.

Little attention, however, was given to the fisheries. Congress did not act on an invitation from Norway to participate in an international fisheries exhibition at Bergen, and the United States was represented only by a consul.[48] One article on fish culture appeared in the Department of Agriculture reports during the war, and emphasis on this subject was to increase in the postwar years.

Aside from mention of silk culture, departmental officials were remarkably successful in avoiding dissipation of energy on unwise schemes for plant and animal domestication. An article on plant geography warned that farmers in applying science to agriculture must retain the thrift and judgment of their fathers.[49] Possibly the most significant comment on the domestication of animals was that made by the department entomologist, Townend Glover, who, while attending an entomological exhibition at Paris, observed a zebu exhibit at the Jardin d'Acclimitation. A report that one of these tick-resistant cattle of India had been successfully bred to a yak led him to remark the potentiality of using zebus for cattle breeding in the United States.[50]

In forwarding plant and animal conservation, Henri Erni, the department chemist, investigated various Old World measures for control of a disease threatening Catawba grapes.[51] Devastation in the orange groves of Florida, it was pointed out, had sprung from the planting of one small mandarin orange tree infected with scale.[52] Emphasis on the necessity for an adequate collection of specimens of foreign insects was one of the reasons why Newton recommended an agricultural museum.[53] Glover had taken to Paris 130 plates showing American insects and a catalog of the vegetable substances on which they fed. A French writer told dramatically how at a late hour, when the grand gold medal of the Emperor remained to be decreed, this stranger from Washington appeared. The scientific jury, finding Glover's work to be essential for the application of entomology to the agriculture of France, decreed the prize. Glover, for his part, brought back from Europe a store of information for the departmental reports.[54]

As to cattle diseases, the advance of the rinderpest which ravaged British herds in 1865 was compared by the department statistician to the sweep of the bubonic plague westward from Asia. Movements of pleuropneumonia and sheep pox had earlier been discussed with reference to European quarantines.[55] Sheep pox, the Commissioner had noted, was prevalent in England, and American customs officers were alerted as to its symptoms.[56] Guarding against the effects of rinderpest was of special concern. Governments abroad, it was found, had set up quarantines and ordered the destruction of infected animals within their bor-

[46] *Ibid.*, 6, 11–12.

[47] *Ibid.*, 5.

[48] William H. Seward to James H. Campbell, Feb. 13, 1865, in *Papers Relating to Foreign Affairs of the United States, 1865*, 3:193; James H. Campbell to William H. Seward, Aug. 26, 1865, in State Department Records, U. S. National Archives.

[49] U. S. Department of Agriculture, *Report, 1863*, 525.

[50] Brahman cattle had been imported into South Carolina before the war, and significant developments occurred in the late nineteenth century. *Ibid., 1865*, 96; U. S. Bureau of Animal Industry, *Annual Report, 1909*, 82–84.

[51] U. S. Department of Agriculture, *Report, 1865*, 324.

[52] *Ibid., 88.*

[53] See Charles A. Browne, "A National Museum of Agriculture," *Agricultural History*, 13:137 (July 1939).

[54] U. S. Department of Agriculture, *Report, 1865*, 101–102; Charles Richards Dodge, *The Life and Entomological Work of the Late Townend Glover* (U. S. Department of Agriculture, Division of Entomology, *Bulletin 18*, Washington, 1888), 21.

[55] U. S. Patent Office, *Report, 1860*, 241, 253.

[56] U. S. Department of Agriculture, *Report, 1864*, 5.

ders. The latter policy, it was thought at the time, might in the United States be an invasion of States' rights, but imports could be controlled.[57] Large numbers of livestock were entering the United States from Canada. A possibility that the infection might spread from the Old World to Canada and cross the border with this northern trade was a reason for congressional response to the suggestion by the Commissioner of a quarantine.[58] Fortunately, North America escaped a scourge which had destroyed many million European cattle.[59]

The Department of Agriculture, it may be concluded, early recognized how the integral relation between farm welfare and that of the nation as a whole extended to foreign relations. In recounting the bearing of agriculture on the war effort, the Commissioner pointed out that the earth had given the Union "an abundance having no parallel in the history of that portion of the country, feeding the army and navy as well as the great mass of people in civil life, and leaving a surplus for exportation to foreign countries, and charitable donations for the alleviation of the suffering people of other nations."[60] Optimistic views as to potential American productive capacity were more than wartime propaganda. They were to be substantiated by skill and energy in the postwar years. A prior viewpoint that the home market was the "most reliable one" had been reinforced, but crop diversification was to prove a slow process. A favorable Anglo-American economic situation helped American wheat to regain its supremacy over that of any other competing nation in British wheat imports and to maintain this position for many years. A mounting volume of meat shipments was, also, for a time to be evident.[61]

Of lasting importance was the fact that a foreign service devoted to statistics and technical collaboration had taken root in the Department. The Commissioner had not hesitated to make recommendations to Congress on subjects such as deleterious imports, and field surveys outside the United States had been endorsed. Opportunities for following European agricultural developments widened in the land-grant colleges as they followed the departmental example of including foreign publications in their libraries. In Connecticut, where the school of agriculture was connected with the Sheffield Scientific School, students were instructed in foreign languages and given lectures on husbandry in other lands.[62]

Cultural diffusion was no one-way process. The departmental agent had become an important figure in Old World technical meetings, and reports on American advances were being transmitted to nations abroad. Understanding had increased in Congress as to the advantages of technical cooperation, and representation of agriculture at a French international exhibition of 1867 was to be supported by appropriation. President Lincoln had regarded this occasion, in prospect, with great favor. As well, he emphasized, because of such "beneficial influence" as it might be expected "to exert upon the prosperity of nations as of its tendency to preserve peace and mutual friendship among them."[63]

[57] *Ibid.*, *1865*, 4, 569.

[58] *Congressional Globe*, 39 Congress, 1 session, 19; on the Canadian livestock trade, see Fred Landon, "Some Effects of the American Civil War on Canadian Agriculture," *Agricultural History*, 7:165–166 (October 1933).

[59] U. S. Department of Agriculture, *Report*, *1866*, 8.

[60] *Ibid.*, *1865*, 1–2.

[61] Edwin G. Nourse, *American Agriculture and the European Market* (New York, 1924), 251, 304; Fred A. Shannon, *The Farmer's Last Frontier* (New York, 1945), 190–196.

[62] U. S. Department of Agriculture, *Report*, *1865*, 181–182; Alfred Charles True, *A History of Agricultural Education in the United States, 1785–1925* (U. S. Department of Agriculture, *Miscellaneous Publication 36*, Washington, 1929), 117.

[63] William H. Seward to John Bigelow, Apr. 5, 1865, in *Papers Relating to the Foreign Affairs of the United States*, *1865*, 2:255–256.

SOUTHERN IOWA AGRICULTURE, 1833–1890

The Progress from Subsistence to Commercial Corn-Belt Farming

MILDRED THRONE

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American agriculture, during the nineteenth century, underwent a series of rapid changes which transformed farming from a way of life to a business.[1] Many factors contributed to this development. First, the westward movement reached full tide, and new farms were being opened throughout the Middle West. Second, industrial expansion and the resulting growth of cities increased the number of people dependent on others for their food supply. Third, new and better agricultural machinery and methods were increasing the output of the farms and supplying the needed surplus. Fourth, railroads were spreading across the country, offering a quick means of transportation for carrying this farm surplus to the city markets. Farmers could concentrate their production on the crops best suited to their locality and still be assured of a market and also of a supply of the goods which they themselves no longer produced.[2]

For a detailed study of one segment of American agriculture, the southern third of the State of Iowa has been selected. Since the State is a geographic and economic unit, the development of this area is not, except in small details, any different from that of the State as a whole, nor, for that matter, is it any different from the entire Corn Belt area. Although various sections today show a differing emphasis, the basis pattern is the same —corn and grass, hogs and cattle.[3]

Iowa was opened to settlement in 1833 on the eve of these great changes in farming. In 1833, Cyrus McCormick was working on his reaper, and the Baltimore and Ohio Company had already built 133 miles of railroad.[4] Within twenty-one years, in 1854, the first railroad had reached the east bank of the Mississippi River, and McCormick was selling three-fourths of his annual production of reapers in Illinois, Wisconsin, Missouri, and Iowa.[5] Iowans who broke the first prairie sod in the mid-thirties lived to see farming transformed by the steel plow, the corn planter, the wheat drill, the reaper, and the thresher. The men who crossed the Mississippi in canoes lived to see the railroads cross the State. Iowa's geographic position made it the inevitable path of the transcontinental railroads, building rapidly west from Chicago in the fifties and sixties.[6] The pattern of Iowa agriculture, thus, was changed almost within a lifetime from subsistence to commercial farming.

In the thirties and forties the subsistence farms of the Iowa frontier followed a similar pattern. The farmer, after first breaking the tough prairie sod with the newly-invented prairie plow, sowed a field of wheat, a field of corn, and possibly some oats, barley, or flax. He had a few hogs and cattle, of no known breed, a horse or two, or possibly a yoke of oxen. His tools consisted of a wooden plow, the share sheathed with iron, a sickle, a cradle, and a flail. His axe cut logs for his house and for fuel. His wife tended the small vegetable garden, wove the linen and woolen cloth needed for her family, made the clothes, cared for a small flock of chickens, and churned the butter. What luxuries were purchased, such as coffee, tea, or sugar, were obtained from a village store in exchange for surplus wheat, corn, eggs, or butter.

[1] This article was presented at the meeting of the Agricultural History Society and the Mississippi Valley Historical Association at Rock Island, Illinois, on Apr. 24, 1948.

[2] Louis Bernard Schmidt, "The Agricultural Revolution in the Prairies and the Great Plains of the United States," *Agricultural History*, 8:178 (1934); Wayne Caldwell Neely, *The Agricultural Fair* (New York, 1935), 76.

[3] See C. L. Holmes, "In Which of the Iowas Is Your Farm?" *Wallaces' Farmer*, 54:459, 464 (1929), and "Five Farm States in Iowa: What Is Responsible for These Divisions of the State?" *ibid.*, 542–543.

[4] William T. Hutchinson, *Cyrus Hall McCormick* (New York, 1930), 1:79; Robert E. Riegel, *The Story of the Western Railroads* (New York, 1926), 3.

[5] Riegel, *The Story of the Western Railroads*, 6; and Hutchinson, *Cyrus Hall McCormick*, 1:352.

[6] Riegel, *The Story of the Western Railroads*, 27.

The fact that villages and market towns sprang up in Iowa, almost on the heels of the first settlers, is an indication of the rapidity of the development of the State, the increasing speed of the westward movement. By covered wagon and by steamboat farmers and businessmen were converging on the new Territory by the thousands in the thirties, by the tens of thousands in the forties.[7] The first to come by the river were usually the storekeepers, men who brought a stock of goods with them and opened a general store which would supply the settler with the manufactured luxuries he could not himself provide. Storekeepers were closely followed by mechanics, men with tools, who found a rapidly expanding market for their labors. Carpenters, blacksmiths, millers—all could find eager purchasers for their work.

The Iowa market towns all followed a similar pattern of growth. From the nucleus of a general store the town expanded rapidly under the impetus of the flood of migration on the one hand and the growing surplus crops on the other. Within a few years a full-scale village economy had developed, revolving around the farmers' needs and products. At Burlington, for instance, there were two general stores before the end of 1833. In 1834 a grocery and a third general store had appeared; in 1835 a hotel and a law office were opened;[8] by 1838 S. Sherfy & Company was manufacturing plows.[9] By 1841—nine years after the opening of Iowa—John B. Newhall, a bookseller in Burlington, reported at length on the bustling town:

> Burlington contains a population of 1,300 inhabitants. It contains the offices of the executive and secretary of the territory, the United States land office for the southern district of Iowa, several commodious brick churches, a jail, six spacious hotels . . . a mutal fire-insurance company, two printing-offices, from each of which is issued a weekly journal, two steam ferryboats, three livery stables, two extensive drug stores, five forwarding and commission houses, twenty wholesale and retail mercantile establishments, one crockery and glass warehouse, two hardware stores, one jewelry, two cabinet and chair making establishments, one cabinet warehouse, three blacksmiths, one carriage-maker, three beef and pork packers, two butchers, three bakers, five tailoring establishments, six practicing physicians, eight lawyers, three acting magistrates, one hatter, two shoemakers, six coffeehouses, a reading-room and mechanics institute, several primary schools for both sexes, an agricultural and a temperance society, &c. &c.[10]

Even in the interior, as the settlers moved into the State and away from the river highways, small towns sprang up out of the prairies almost overnight. Within three months Oskaloosa in Mahaska County grew from an idea into a small settlement of a dozen log cabins, one of which was the general store, marked with the usual sign of such businesses, a piece of red flannel hung over the door. A month later "dozens of frame houses had been built," and a tavern, another general store, two blacksmith shops, and a tailoring establishment had appeared.[11] Mahaska and Wapello counties had been opened to settlement on May 1, 1843. The steamboat *Agatha* was grounded on a ledge of rock in the Des Moines River at Appanoose Rapids in Wapello County from 4 o'clock on the afternoon of May 1 until daylight of May 2. One of the polemen on the keelboats with the *Agatha* reported: "Before we left that vicinity they had commenced staking off the town of Ottumwa and that city was born on the 2d day of May, 1843."[12] Thus, the Iowa pioneer was not a trail breaker, a subsistence farmer, for very long. Seldom was he dependent on his own resources for more than a season or two in any one locality.

Another indication of this speed is seen in the fact that by 1836—three years after the Territory had been opened—lumber was coming into Burlington and Fort Madison from as far east as Pittsburgh. Later the lumber for Iowa homes came down the Mississippi from Wisconsin. This supply was very soon augmented by local sawmills set up on the rivers and creeks of the interior. By 1849 it was possible to build a four-room frame house, 19 by 25 feet, with the necessary doors, windows, plastering, and steps "both front and rear," for $294.50. The same house of brick cost $325.00.[13]

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[7] *Hawk-Eye and Iowa Patroit* (Burlington, Iowa), Oct. 17, 1839.

[8] *History of Des Moines County, Iowa* . . . (Chicago, 1879), 472.

[9] *Wisconsin Territorial Gazette* (Burlington, Iowa), Apr. 28, 1838.

[10] John B. Newhall, *Sketches of Iowa, or, The Emigrants Guide* (New York, 1841), 113.

[11] Mrs. T. G. Phillips, "Mahaska County's First School," *Annals of Iowa*, ser. 3, 3:219 (1897).

[12] Tacitus Hussey, "History of Steamboating on the Des Moines River, from 1837 to 1862," *ibid.*, ser. 3, 4:334 (1900).

[13] Charles A. White, "The Early Homes and Home-Makers of Iowa," *ibid.*, ser. 3, 4:181 (1899); Hawkins Taylor, "Recollections of Thirty-Four Years Ago," *ibid.*, ser. 1, 8:336 (1870); *Valley Farmer*, 1:4–5 (1849).

With civilization so close on his heels, the Iowa farmer could concentrate on crops which would bring him a cash return, or at least on crops which could be used in trading at the numerous general stores so close at hand. The staple crops were corn, wheat, the smaller grains, and livestock. Corn, the traditional American frontier crop, from the first far outstripped other grains both in area and yield. Climate and soil were ideal for this crop. Between 1840 and 1860 Iowa's corn production increased over 400 percent, and in the latter year southern Iowa accounted for about 58 percent of the total.[14] Planting and cultivation were fairly simple. The fields were plowed in May, weather permitting. (By 1850 the steel plow was used almost exclusively on the prairies, replacing the cheaper but less effective cast-iron implement.)[15] After plowing, the corn was planted by hand, harrowing was done several times with double-shovel plows or iron-tooth harrows, or both, and then the crop was left to the usually kind mercies of the Iowa summer climate. Without much more attention, yields varied from 40 to 60 bushels per acre as a rule, and often in ideal situations or because of careful cultivation to over 100 bushels. By these methods Iowa's corn crop increased faster than that of any other corn-producing State, according to the 1860 United States census.[16]

Husked in the field, the corn was stored in rail bins.[17] The river counties, before the advent of the railroads, could ship their corn to Saint Louis and the East fairly cheaply.[18] Farther west the cost of carrying the bulky crop to market was almost prohibitive.[19] Streams of new settlers, moving west during this period, offered a good market at the farmer's door, however.[20] But the best use the Iowa farmer found for his corn was as a feed for his livestock. By feeding his cheap and plentiful grain to his hogs and cattle he could produce a saleable and easily transportable crop—more accurately, a crop which transported itself to market. Thus, livestock came to be the most important marketable crop on the Iowa frontier, as it had proved to be on every frontier since the first crossing of the Alleghenies. Iowa farmers were following a familiar pattern when they began to specialize more and more in corn, hogs, and cattle.

Iowa's climate, ideal for corn, was often injurious to wheat. Fall wheat, which made the best flour, was often killed by the harsh Iowa winters; while spring wheat was just as often blasted by the heat of the Iowa summers or rusted by a too-wet spring. The yield, where successful, was large and encouraging for the first few years.[21] But crop failures, chinch bugs, and the instability of the wheat markets were factors which soon reduced the popularity of wheat as a major crop. Furthermore, the cultivation and harvesting of the crop, before the introduction of mowers and reapers, required a great amount of labor. Sown broadcast on a newly-broken field, or on a field previously broken by a crop of sod corn, the wheat was reaped with a cradle and threshed out with a flail or tramped out by horses or oxen, and the grain separated from the chaff by the age-old method of tossing it into the wind or into the breeze made by a sheet waved vigorously. This time-consuming process was still in use in some places in the late fifties, in spite of the introduction of reaping machinery, implements which speeded the harvesting of the grain but also made it increasingly expensive.[22]

The instability of the wheat market was perhaps the factor most discouraging to the farmer. Prices might range from 40 cents to $1.00 per bushel within a year, depending on the season, the quality of the wheat, nearness to market, or just general

[14] U. S. Census Office, 8th Census 1860, *Agriculture of the United States in 1860*, xlvii; and the Iowa census publication entitled *1836–1880 Census of Iowa* (Des Moines, 1883), 278–280.

[15] Percy W. Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620–1860* (Washington, 1925), 283; Leo Rogin, *The Introduction of Farm Machinery in Its Relation to the Productivity of Labor* . . . (Berkeley, Calif., 1931), 33–34.

[16] U. S. Census Office, 8th Census, 1860, *Agriculture of the United States in 1860*, xlvii.

[17] Iowa State Agricultural Society, *Report, 1857*, 241, 435.

[18] *Ibid.*, 259.

[19] *Ibid.*, 225; *ibid.*, *1858*, 424.

[20] *Ibid.*, *1857*, 355, 365, 372; *ibid.*, *1858*, 200; *ibid.*, *1859*, 168.

[21] *Prairie Farmer*, 2:75 (1842); *Iowa Farmers' Advocate*, 1:70 (1847).

[22] William M. Donnel, "The Pioneers of Marion County," *Annals of Iowa*, ser. 1, 7:41 (1869); David C. Mott, ed., "William Savage: Iowa Pioneer, Diarist, and Painter of Birds," *ibid.*, ser 3, 19:100 (1933), Bidwell and Falconer, *History of Agriculture in the Northern United States*, 281.

business conditions. The price of $1.00 per bushel, offered in May of 1857 in Washington County, would mean, at the average yield of 12 bushels per acre reported for that year, a return of $12.00 per acre for wheat. But few farmers had wheat in May, unless they had been able to hold their previous years' crop, and few farmers had enough of a surplus to do this. In October, when the crop of spring wheat was ready, the price had fallen to 40 cents, which meant a return of only $4.80 per acre.[23] These variations in price, coupled with the uncertainty of the crop—two factors always present in wheat farming—made wheat growing a precarious venture.

Corn, on the other hand, was a fairly certain crop, only an unusually dry or wet year affecting the yield seriously. Thus, corn came more and more to be the sure and reliable crop for the Iowa farmer. Farmers' letters in the agricultural journals and in the newspapers bring out graphically the growing emphasis on corn and hogs. In 1860 Calvin Allyn of Cedar Rapids wrote to the *Country Gentleman:* "Iowa farmers are turning their attention to raising hogs and cattle, as the best business which they can follow."[24] According to a Polk County farmer in 1863, corn, which cost 10 cents per bushel to raise, would bring only 12½ to 15 cents per bushel on the Des Moines market; 20 bushels of corn, if used to fatten a 200-pound hog, would bring from $6.00 to $6.50 in the same market, a profit of $4.00 to $4.50 on 20 bushels of corn, which, if sold as grain, would have brought a top profit of only $1.00.[25] In 1870 a letter to the *Iowa Homestead* read: "A farmer in Iowa can make more money on a dozen of eggs than he does on raising a bushel of wheat. A farmer in Iowa can make more money on one hog than he can on one acre of wheat."[26] Many similar letters show that the Iowa farmer was concentrating on the crops which would bring the highest profits—in other words, the Iowa farmer was rapidly becoming a businessman.

The 1856 State census, the first which reports the acreage of the various grains, shows that of the acres cultivated in the three leading crops in southern Iowa—wheat, oats, and corn—23 percent was in wheat, 18 percent in oats, and 59 percent in corn.[27] This roughly approximates the State acreage, which was 29 percent for wheat, 15 percent for oats, and 56 percent for corn.[28]

During the first two decades swine and cattle on the Iowa farms were raised mainly for home consumption or for sale to immigrants crossing the State. As the acreage in corn increased, a proportionate increase in the number of hogs and cattle is evident. By the time the farms of the southeastern counties in Iowa were established, the packing industry in Chicago had become a reality. With this market close at hand, plus the river markets of Saint Louis and New Orleans, it was natural that the Iowa farmer should pay increasing attention to the production of more livestock. With two of the active river market towns, Burlington and Keokuk, situated in southern Iowa, that section had a strong incentive to produce stock which would sell readily. The farmer could drive his stock overland to Burlington or Keokuk, where they could be shipped by river steamboat to Saint Louis and New Orleans; or the stock could be driven to Chicago by the farmer himself or by drovers who made a business of traveling through the countryside buying up cattle.[29] A further market soon appeared—local packing plants in the river and interior towns.

At first packers bought any livestock presented for sale, paying for it by weight. Thus, there was little need to improve the breeds—the main task was to produce fat stock, and this was easily done by plentiful feeding of corn. When the packers began to distinguish between types of hogs and cattle and to pay better prices for better stock, the incentive was added for improving breeds. Wherever markets distinguished and graded either grain or livestock, the farmers, feeling the distinction in their pocketbooks, took steps to improve their products. The movement for better farming and better stock, present in Iowa since the thirties, at last began to have effect. Iowa farmers were, by

[23] *Washington Press* (Washington, Iowa), May 27, Oct. 14, 1857.

[24] *Country Gentleman,* 15:83 (Feb. 2, 1860).

[25] *Ibid.,* 21:90 (Feb. 5, 1863).

[26] Quoted in *Warren County Banner* (Indianola, Iowa), Dec. 8, 1870.

[27] Wheat, 156,211 acres; oats, 185,517 acres; corn, 409,067 acres; total, 690,795 acres. Figures compiled from *1836–1880 Census of Iowa,* 278–280, 284–286, and 296–298.

[28] Wheat, 388,080 acres; oats, 190,922 acres; corn, 737,213 acres. *Ibid.*

[29] E. Z. Russell, *et al.,* "Hog Production and Marketing," U. S. Department of Agriculture, *Yearbook, 1922,* 187; John A. Hopkins, Jr., *Economic History of the Production of Beef Cattle in Iowa* (Iowa City, 1928), 165–166.

the fifties, businessmen, awakening to the fact that quality paid better returns than quantity.

The coming of the railroads in the late fifties did not change Iowa's economy—rather, it merely speeded it on the path already taken. In 1856 the Burlington and Missouri River Railroad, later to become a part of the Chicago, Burlington, and Quincy Railroad system, began building across southern Iowa.[30] By 1859 the road had reached Ottumwa on the Des Moines River,[31] where construction was halted by the coming of the Civil War. Building was resumed after the close of the war, and the road reached the Missouri River in September of 1869.[32]

The many influences of the coming of the railroad were not all evident by 1860 in southeastern Iowa. Certain new emphases are noticeable, however. Corn, which had been fed to the livestock, now had an independent market.[33] In Washington County dealers bought unusual quantities of corn in 1859. According to the local newspaper, this was "an article our farmers have never been able to sell for shipment before, and for which they are now indebted to railroad transportation."[34] On the other hand, railroads presented new facilities for transporting cattle and hogs in a more highly finished state, thus increasing the profits from this branch of husbandry.[35] The coming of the railroads, then, did not radically change Iowa's agricultural pattern, but rather re-emphasized certain phases of that economy.

The Civil War decade brought other changes to Iowa's farming. The closing of the Mississippi River cut off Iowa's southern sugar and molasses supply, and the cultivation of sorghum thus attracted more interest than it had in the past. The demand for wool, to replace southern cotton, caused a rapid increase in sheep raising. The needs of the army produced an enlarged market for both horses and livestock. The grain crops increased in area during this decade. Iowa's rank in corn production rose from seventh to second place in the Nation, and in wheat from eighth to second place.[36] The number of farms and the number of improved acres also increased. Part of this development, of course, can be attributed to the natural growth of a new country, but the speed of these changes can in large part by credited to the artificial stimulation of the war. Every crop showed an increase in production and acreage; the number of hogs, cattle, and horses more than doubled.[37]

Perhaps the greatest change in Iowa farming during the sixties was the increasing use of farm machinery. With so many men called to the army, the need for laborsaving machinery was great. With food prices rising rapidly, the farmers were easily encouraged to go into debt for machines they could not have afforded in the previous decade. In seven years, from 1860 to 1867, the value of Iowa's farm machinery more than doubled, and in the two years from 1867 to 1869 it almost doubled again.[38] Machines enabled the farmer to cultivate more land with fewer farm laborers. Reapers, mowers, planters, the sulky and riding plow—these and many others— made it possible to farm faster and with less labor. The level and rolling prairies of the Middle West were particularly well adapted to the use of such implements.[39] Early in the sixties the harvester had begun to replace the reaper. Self-binders to be attached to reapers were also developed in the seventies.[40] Mowers for cutting both prairie and tame hay were popular.[41] Improvements in reaping machines naturally led to dissatisfaction with the walking plow; the sulky and gang plows were greeted with pleasure. Sulky rakes and harrows

[30] Richard C. Overton, *Burlington West: A Colonization History of the Burlington Railroad* (Cambridge, Mass., 1941), 71.

[31] *Ottumwa Weekly Courier*, Aug. 18, 1859.

[32] Overton, *Burlington West*, 231.

[33] Charles T. Leavitt, "Transportation and the Livestock Industry of the Middle West to 1860," *Agricultural History*, 8:27 (1934).

[34] *Washington Press*, Nov. 9, 1859.

[35] Leavitt, "Transportation and the Livestock Industry . . . ," 27–28; Hopkins, *Economic History . . . of Beef Cattle in Iowa*, 3, 24–25.

[36] *1836–1880 Census of Iowa*, 64, 66.

[37] *Ibid.*, 278, 281, 284, 287, 348, 350–351, 360, 362; Louis Bernard Schmidt, "Farming in Iowa in the Sixties," *Wallaces' Farmer*, 53:1581 (1928).

[38] 1860—$5,327,033; 1867—$11,362,402; 1869—$20,540,977. *1836–1880 Census of Iowa*, 270.

[39] Howard Hall, The Development of Agricultural Machinery in the Seventies (unpublished M. A. thesis, State University of Iowa, 1940), 5.

[40] *Ibid.*, 12, 15; William T. Hutchinson, "The Reaper Industry and Midwestern Agriculture, 1855–75," in *Essays in Honor of William E. Dodd*, ed. by Avery Craven (Chicago, 1935), 116–117.

[41] *Hawkeye Flag* (Winterset, Iowa), Aug. 26, 1864; *Keokuk County News* (*Sigourney, Iowa*), May 17, 1861; Iowa State Agricultural Society, *Report, 1868*, 412.

added to the ease and speed of cultivation.[42] Corn cultivation, which had not been benefited by the reapers and mowers, now began to experience the advantages of the mechanical revolution. Riding and double shovel plows enabled the farmer to prepare his field quickly. Hand planters were used widely by the middle sixties, and in 1867 Cornelius Skiff of Grinnell had invented a combination corn plow and seeder.[43] Corn shellers and cornstalk cutters further lightened the farmers' labor.[44] In the decade of the sixties the value of machinery in southern Iowa rose from $2,300,000 to over $6,500,000.[45] As in the case of the railroads, machinery did not change Iowa's agricultural pattern; rather, the new tools merely enabled the farmer to continue his established methods at a faster pace.

On the whole, the seventies were years of continued rapid expansion—expansion in population, in acres under cultivation, in grain production, and in number of livestock. The eighties, on the other hand, were years of leveling-off and of consolidation. During the decade of the seventies the number of farms in southern Iowa, for instance, increased from almost 45,000 to well over 66,000; improved acreage almost doubled; the production of corn and of oats trebled; the number of swine and cattle doubled; and twice as much hay was produced in 1880 as in 1870.[46] A large part of this increase can be credited to the sale of the Burlington railroad land grant, which was put on the market in April of 1870.[47] The railroad sold its lands, as far as possible, to actual farmers on better terms than could be obtained from the land agents.[48] The farms, averaging between 75 and 80 acres, were sold on a 10-year credit plan at 6 percent interest. "No part of the principal due for two years, and afterwards only one-ninth annually," read the advertisements.[49] These contracts provided that at least one-tenth of the acreage purchased must be improved yearly for the first 3 years of the contract.[50] Thus, the railroad attracted many potential farmers to Iowa.

These new farmers quickly settled into the general pattern of Iowa farming—corn and hogs, grass and cattle. The production of corn and swine increased rapidly, while the production of better grades of cattle showed a marked increase after the advent of the railroad. Reports of shipments of "fancy fat cattle" from various counties became common.[51] Coupled with the improvement in cattle came an increased interest in the tame grasses and also in dairying. Since cattle require plenty of good pasture land, and since the wild prairie grass was nearly exhausted, practically all the counties of southern Iowa were reporting large areas planted to grass by 1879.[52] Dairying never became popular in southern Iowa except for a flurry of interest in the eighties.[53] Of the 478 creameries in the State in 1887, only 13 percent were in southern Iowa, where the majority of the farmers continued to concentrate their attention on beef cattle—the stock they knew best and for which they had a continuing and reliable market.[54] Wheat acreage declined steadily after the price slump of the postwar years; by 1890 the total production had fallen to the level of that of 1860.[55] Meanwhile, oats were gaining in popularity, both as a food for the increasing number of horses in Iowa and for use in the manufacture of oatmeal, grandly described by the makers as "a farinaceous food . . . highly esteemed for its nutritious qualities."[56] Horses for the new horse-drawn farm

[42] Iowa State Agricultural Society, *Report, 1866*, 357; Paul H. Johnstone, "Old Ideals Versus New Ideas in Farm Life," U. S. Department of Agriculture, *Yearbook, 1940*, 126; Rogin, *The Introduction of Farm Machinery . . .*, 36.

[43] Iowa State Agricultural Society, *Report, 1867*, 226.

[44] *Ibid., 1867*, 221, 259; *ibid., 1870*, 273–311, with illustrations of all types of farm machinery.

[45] *1836–1880 Census of Iowa*, 270–273.

[46] Totals compiled from *ibid.*, 197–199, 240–243, 244–247, 266–269, 296–298, 311–313, 350–353, 360–361, and 362–364; U. S. Census Office, 11th Census, 1890, *Report on Population of the United States*, 1:18–19, and *Report on the Statistics of Agriculture*, 138–140, 207–208, 246–247, 285–286, 327–328, 364–365, and 430–431.

[47] Overton, *Burlington West*, 314.

[48] *Country Gentleman*, 36:293 (1871).

[49] *Osceola Republican*, July 18, 1872.

[50] Overton, *Burlington West*, 296; Iowa State Agricultural Society, *Report, 1871*, 39.

[51] Iowa State Agricultural Society, *Report, 1874*, 335; *Ottumwa Democrat*, June 17, 1875.

[52] See Iowa State Agricultural Society, *Report, 1879*, 302–308.

[53] *Adair County Reporter* (Greenfield, Iowa), June 28, 1881; *Iowa Homestead*, 26:4 (1881).

[54] Iowa State Agricultural Society, *Report, 1877*, 568; *ibid., 1880*, 19; *ibid., 1887*, appendix, 19–36; *ibid., 1890*, 569.

[55] *1836–1880 Census of Iowa*, 284–289; and U. S. Census Office, 11th Census, 1890, *Report on the Statistics of Agriculture*, 364–365.

[56] Iowa State Agricultural Society, *Report, 1882*, 21.

machines were much in demand, and a further market was found in the cities of the Middle West and the East where drayage and the new horsecar presented a steady market.[57]

As always, the demands of eastern markets influenced and guided Iowa agricultural production. Iowa farming, from 1870 to 1890, improved, consolidated, and came of age. The machine had made commercial farming probable, but the railroad had made it possible. The third factor in Iowa's development, more scientific farming, long urged by farm leaders, would now be the important force in Iowa's development. Without better farming, the use of machinery and the heavy market demands brought by the railroad would have completely exhausted even the rich soil of Iowa. By 1890 the public domain of Iowa was practically all in private hands. A new era was opening. Farmers had to make the best of the land they owned, since there was no "new frontier" left, either in Iowa or in the West. Agricultural education, the activities of State and national agricultural departments, and of the many types of farmers' organizations were to be the agencies of progress in the future.

[57] *Ibid.*, *1887*, 51–52, 465; *Prairie Farmer*, 53:117 (1882), 58:292 (1886).

THE RURAL COMMUNITY IN THE URBAN AGE

The Changes in Michigan since 1900

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At the opening of the twentieth century the average Michigan farmer was a member of a well integrated social-economic institutional open-country neighborhood whose nucleus was a tiny hamlet with a population ranging from 40 to 100 and which was ordinarily within walking distance of all the individuals comprising this neighborhood.* Many of these minor distribution points were little more than sidings usually found at convenient and frequent intervals along one of the numerous railroad lines, although some were prosperous inland centers (especially in the older southern counties). This hamlet most frequently included a country store, a general produce agent (not infrequently a second seasonal representative), a blacksmith, a mason, a carpenter, a country school, a church, and, in rare instances, a physician and a veterinary. It was only natural that this type of neighborhood should be characterized by social homogeneity.

The nearest town, on the other hand, was merely a trading point which rendered economic and professional services that were not available at the hamlet. Farmers, with the exception of those living immediately adjacent to the town, confined their visits to Saturdays, circus days, fairs, homecoming, or some distinctive shopping time. Although some social integration was apparent, it was on a very limited scale, save for those few who lived within a mile of the town. Rural people could recognize a partial segregation which did not rise necessarily from economic differentials (since the farm income compared rather favorably with that of the average townsperson), but rather was the result of the observance of a social pattern which was regarded as outmoded or unprogressive to the "sophisticated" city and town residents.

The basic pattern today is entirely different. The hamlet has not survived. The contemporary farmer is a member of and is socially integrated with a community embracing five or six former open-country neighborhoods and a town or village which serves as his economic and educational and social center. Although numerous studies indi-

* This article was presented at the joint meeting of the Agricultural History Society and the Mississippi Valley Historical Association at Rock Island on April 24, 1948.

Much of the information in this article has been derived from State gazetteers, county histories, questionnaires submitted to representative farm leaders and business people, and interviews. The writer selected one hundred typical communities listed in the State gazetteer for 1900 and traced the changes in community structure during the subsequent years.

cate that this trend is nationwide, the process has been unusually rapid in Michigan and has been accomplished with fewer "strains" than have been observed in some areas.

There is no complete agreement on the relative importance of the several conditions and processes that have brought about these basic changes, although the automobile has been most frequently mentioned as the fundamental factor. The end of the horse and buggy age has undoubtedly influenced rural people more than any other tangible factor. The Good Roads movement acquired a popularity in Michigan at an early time. A State highway department was created in 1905, and, by 1913, it had outlined the basis for the present modern system. The approval of a fifty-million dollar bond issue in 1919 assured the rural areas of road facilities which have been enlarged by later liberal expenditures. The majority of farmers are within an eight or ten minutes' ride of some town, and those in the southern part of Michigan (although they are not dependent upon either city) can motor to Detroit or Chicago with considerable ease. The telephone and the radio have removed the isolation formerly resulting from the absence of rapid means of communication. The changes in farm technology are equally important and have even made the farmer less dependent upon his immediate neighbors than previously. Likewise, the general wealth of the Michigan farmers and their nearness to the numerous towns prevented country life from serving as a basic source of discontent and prejudice against town ways.

The State government has played a prominent part. In addition to the State Department of Agriculture, primarily administrative, which has been constantly streamlined and which has been the recipient of liberal appropriations, an even greater emphasis must be assigned to the Michigan State College at East Lansing, which until 1925 was known as the Michigan Agricultural College. Although the institution has become a second State university, husbandry has not been neglected. Its experimental farms have been a basis of guidance. Its extension service which was inaugurated on a modest scale in 1875 now embraces a new inclusive plan of assistance for the farmer, and its five hundred bulletins range from those dealing with the technical phases of agriculture to the means of achieving interior decoration for the farm home at a low cost. The college works in close conjunction with the county farm agent whose services are no longer regarded as academic. The State legislature independently of the agencies and institutions mentioned has been very generous in its appropriations for a richer and better farm life. Even county and other forms of local government have become responsive to the requests for help for the farm community. Naturally the assistance rendered by the Federal Government (especially in recent years) has made new services available to the Michigan rural people. A number of agricultural societies of which the Grange and the Farm Bureau are typical have also been fundamental in bringing about a new farm era. Unquestionably, the new concept of the contemporary community school and a community church is of equal importance.

Any discussion of Michigan farm communities brings to the fore exceptions more numerous than elsewhere, since the State contains industrial belts, borderline extraction zones, and rural counties which in reality are now dependent upon a tourist economy. Specialists, however, have been able to designate as many as fourteen broad agricultural districts although further subdivision is possible.

The average farm is one which emphasizes and is dependent upon a large degree of general farming combined with some form of specialization which is usually rather intensive. Although the average unit has tended to increase slightly during the last five years, the standard farm since 1900 has been one of approximately 100 acres and with the prerequisite capital investment for agriculture as the exclusive basis of earning a living. Only approximately 50 percent of the acreage of Michigan is classified as farm land, and some has been scarcely deserving of this designation.

Agriculture has been most successfully pursued in the area south of the line extending from the mouth of the Saginaw River westward to Lake Michigan and also in the immediate shore line of Lake Michigan as far north as Mackinac. Farming in the northern counties of the lower peninsula and much of the upper peninsula is scattered, and this article will necessarily exclude that area. Although there has been a decline in population in many counties, it is not noticeable in the most favorable agricultural zones of the four southern tiers of counties which in some instances have even shown a slight increase in population. Although Michigan is popularly represented as industrial, 60 of its 83 counties are basically rural and 22 are entirely so.

Although the new farm communities in these

typical agricultural areas are undergoing constant change, some characteristics stand out prominently. The nucleus is an incorporated village or town whose population ranges upward from 300. In the southern half of the State the average area of communities whose center is a village of less than 1,000 inhabitants is about 52 square miles, while the average area of communities with a village of 1,000 to 2,500 inhabitants is about 77 square miles. In the majority of the communities the rural population tributary to the town tends to exceed that within the town.

The small town has continued to show vitality, and the notion that urbanization has led to its disappearance is fallacious. Undoubtedly the attention given to certain ghost towns and the decline in population in some submarginal rural areas has led to this erroneous approach.

The average town in a thriving rural community (with a population of from 500 to 1,500) has often shown a slight increase in population. Those with a population of 300 to 500 remain quite stable. A population of 300 apparently guarantees the continuous identity of the village. A population of at least 500 would seem to insure greater continuity and suggests an increase in population.

All of these towns perform services for a thriving farm community. The major factors essential for a vital town life center around the development and retention of services that make the locality a community center for an adjacent hinterland. It must furnish the minimum of services to supply other than those unusual functions performed only by the larger cities. The small town because of its new and closer identification with the rural community is able to take on more of the characteristics of a miniature city and competes favorably with a city.

The number of business establishments was always a significant factor, and the presence of both a substantial number and well stocked stores was important. The most successful communities had several groceries, two or more general stores, hardware establishments, and meat markets. The hamlet ordinarily lacked the last two mentioned, and the inventory of its general store represented a smaller investment than that of the merchant in the town.

Towns usually had additional places of business that distinguished them from open-country business centers. The confectioners are almost universally found in towns of more than 300 as are also the bakeries (sometimes combined with the confectionery). The pharmacy, a fixture in towns, was almost lacking in the hamlet. Banks serve as another important index.

The professional services rendered by the town were both numerous and vital. The physician was found in all towns, and those with a population of more than 500 usually had several. Each town was also the home of the veterinary. Attorneys were found in all towns. The skilled services provided by the shoemaker and the dressmaker were also absent in the hamlet.

Prominent in most towns were auctioneers, insurance and real estate agents (often combined), representatives of national concerns, and music teachers. In every respect the town as distinguished from the hamlet afforded a variety of cosmopolitan services.

No noneconomic link between the farm and town is more important than education. Although a few rural children could be found in any town high school in 1900, the majority were denied this privilege and completed their formal work with graduation from a small district eight-grade school. From 1920 onward the trend in Michigan has been toward the consolidation of rural schools to bring about a community standard twelve-grade system. The availability and greater use of motor transportation coupled with a favorable attitude of the legislature has encouraged this trend. Educators at first emphasized the township schools, and some mergers were effected on this basis. Since the township is not necessarily a natural community unit, not infrequently this form of organization failed to create a school district which included the town and the tributary rural area. Consequently, the later Rural Agricultural Act has been more popular since it makes possible adequate and flexible conditions for the establishment of the true community school which results from the consolidation of two or more school districts (in practice several). This form of merger has given rise to an improved school usually located in the town which enjoys standards and facilities that compare favorably with cities of the same population. Bus transportation is assured by State subsidies. This new form of organization is as much desired by the town as the country and is another evidence of the partial dependency of the former upon the latter. The basis of opposition to the new school (although diminishing) arises from an emphasis of rural-town prejudice and the argument that school taxes would be increased.

Some rural people contend that teachers in their neighborhood are less qualified than the personnel in the cities since the salary schedule is less attractive. On the other hand, many teachers prefer the rural areas, and all of the State schools of education offer courses to prepare teachers for rural work.

The high school in particular has become one of the special units bringing about community homogeneity. Community halls and auditoriums of the schools have made available new recreational possibilities centering in the town. The larger school unit has brought about the first modernization in the history of rural school building in the State. Parent-teacher organizations have done much to break down the former farm-town cleavage. The majority of young people now settling on farms have a high school education, and large numbers have attended college. The farm community undoubtedly produces as many professionally skilled men and women as does the average town.

An unusually large percentage of farmers in southern Michigan take advantage of Michigan State College extension courses—an interesting evidence of the disappearance of prejudice against the college. Men and women who do not find time for these courses attend Farmers Day at the college (inaugurated in 1927) which offer programs that range from the economic to the technical phases of husbandry.

The farmer shows a greater interest in national, State, and rural affairs than previously. Nearly all farmers subscribe to a daily newspaper and the town weekly in addition to leading periodicals.

Although rural library facilities are not adequate, some gains have been made in recent years through cooperation within the new enlarged community. The township library is popular in the older agricultural counties. School libraries supplement the township service. Recent legislation has made possible the county library which unfortunately reaches only a limited number. Approximately two-fifths of the rural people within the State are without public library facilities, and the ratio is lowest where the population is least.

The trends in religion give evidence of considerable variation. Nearly all Michigan communities have been characterized by a multiplicity of denominations. Without exception, the open-country church, one of the basic unifying forces of the old neighborhood, has tended to lose its identity. The majority of open-country churches have a membership of less than fifty and have found it increasingly difficult to survive. Consequently, there are numerous abandoned open-country churches although more rural people still continue to attend the hamlet church than that in the town. Contrary to popular opinion, the latter tends to enjoy a healthy growth, for the majority of flourishing congregations found in any town in the year 1900 are still in existence. The largest town congregations at present employ assistants (often clergymen with special rural training to work among the country people). The percentage of both church and Sunday school attendance among the rural population seems to be slightly less than that of the townspeople. The rate of church membership is lowest in the cutover counties where it sometimes falls to the 10-percent mark. This surprising circumstance can be explained by the general poverty of the populace and the distance and time required in travel to reach a particular church. The number of small sects is very large, and few have lost their identity. Consolidation in fact has been most noticeable in denominations that are characterized by minor points of doctrine. The more popular denominations have combined with those of a similar faith in the towns.

Public health has become one of the additional important functions of the rural community. Since 1927 Michigan's rural areas have been aided by county or district health departments which can be established by a county board of supervisors. Community hospitals were recognized as fundamental during the thirties and have been given unusual encouragement and support since the close of World War II. Obviously, the improved consolidated rural schools have given attention both to the general problem of health and malnutrition. Farm organizations have also recognized the importance of rural health and regard their problem as worthy of a special program. Many of the leading towns have become administrative centers for the dispensation of various forms of social welfare.

In nearly every respect cooperation between the village and town has increased during the last few years. The various service clubs have played an active role in demonstrating that rural and townspeople can be closely integrated socially and otherwise within a new community. More than previously, the farmer is inclined to join fraternal and other organizations with a town origin. The only cleavage has resulted from the

opposition of some business people to the farmers' cooperatives. The farmer is probably more closely identified with the professional and business elements in the town than are the farm laborers.

Despite this integration, the farmer has not been absorbed entirely, for the processes mentioned have been accompanied by an occupational consciousness which has been stimulated by the professional organizations of which the Michigan Farm Bureau Federation is the most progressive. This organization now has a membership of 1,000 or more in 24 counties and has invaded nearly all portions of the State. As it might be expected, the largest membership can be observed in those counties where the farmers are most conscious of their economic problems.

The Bureau along with other organizations has recognized the new community and works through it. The Bureau has been successful in organizing several hundred community bureaus. Its active women's division encourages a wide range of programs including a women's camp. The Junior Farm Bureau similarly has undertaken a variety of functions. The Michigan Farm Bureau has attempted to emphasize a farm economic consciousness and is the clearinghouse of an elaborate program of cooperatives.

In addition to the Michigan Farm Bureau, the State Grange and the Gleaners have been the most active in emphasizing the high standard of living for the farm home. The young farm people of the State have been encouraged to recognize their profession at an early age. The 4-H Club with an active membership is the outgrowth, in Michigan, of a Corn Growers' Club for Boys which was inaugurated early in the century by the late Congressman Joseph McLaughlin of Muskegon for the youngsters of his district.

Husbandry has an appeal for those who follow it. About 95 percent of the farmers in the State were raised on a farm. Among the few who turned to the country following city residence are numerous small-scale operators who often lack sufficient capital and an understanding of the occupation. Farm boys have been encouraged to remain on the farm, and they show a greater willingness to follow in the footsteps of the father than was true previously. An ever increasing percentage of the farms in the State are father-son combinations.

The majority of farmers in the richest agricultural areas have not turned to part-time farming to any great extent. Likewise, the highest standard of living is enjoyed by the men who engage in full-time farming. The farmers who lived in the community for the longest interval of time also show less inclination than others to accept outside employment.

Irrespective of variations and changing limits which are difficult to define, the new farm community differs radically from the local-interest hamlet found at the opening of the century. The integration with the town is significant and has been accompanied by urban sophistication. The farmer is more professional than previously. For occupational purposes alone, there is a tendency to combine several open-country neighborhoods into a community which is independent of the town. As a result, there is a degree of social life associated with rural ways and an effective leadership that represents an alert rural population.

FEDERAL PROTECTION OF PUBLIC TIMBER IN THE UPPER GREAT LAKES STATES

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When the United States Government acquired the public domain and thus became one of the largest owners of timberland in the world, it was confronted with responsibilities of property that it was not prepared to meet.[1] A dynamic industry was moving from the East into the public-land States of the West where laws for land acquisition were fashioned for the settler rather than for an industry utilizing trees as its raw material. Like the cattleman and the miner, the lumberman conducted his business in the face of a legal system that did not recognize the needs of his industry. This article is an examination of the efforts of the Federal Government in the nineteenth century to enforce laws that ran counter to the interests of a powerful industry on the frontier of Wisconsin, Michigan, and Minnesota.

Although earlier laws had been passed to safeguard live oak and cedar forests for the navy, it was not until 1831 that Congress made it a felony to cut and remove timber from the public lands without permission.[2] Sometime after the passage of this law, a system of enforcement was worked out through the establishment of timber agencies under the jurisdiction of the Solicitor of the Treasury Department.[3] Since the records of this service prior to the creation of the Department of the Interior are fragmentary, no accurate estimates can be made of the activities of these early agents. The records do show that by 1838 the Solicitor was working with the district attorney in Wisconsin to suppress timber depredation, and that by 1851 agents were at work in northern Michigan and Wisconsin, and in Minnesota.[4] However few lines of policy had been drawn, for in response to an inquiry about depredations, the Acting Secretary of the Interior stated that no instructions had been issued by his office to punish trespassers on the public domain and that when instructions did emanate from the Solicitor of the Treasury, they varied according to the section of the country and the enormity of the offense.[5]

In 1852, the Solicitor of the Treasury turned over his function as protector of the public timber to the Department of the Interior, created in 1849. When the President called for a report on what had been done to prevent depredations, the Secretary forwarded the request to the Solicitor. The latter replied by transferring the mass of documents relating to that division of his office to the Secretary of the Interior and by suggesting that all of the business which did not properly belong to his office should be assumed by the Department of the Interior.[6] The Secretary accepted the charge, sent out a notice to the timber agents, and enlisted

[1] This article was presented at the joint session of the Agricultural History Society, the Economic History Association, and the Mississippi Valley Historical Association at Rock Island, Illinois, on Apr. 23, 1948. It is a summary of a research project of the Forest Products History Foundation at the Minnesota Historical Society.—*Editor.*

[2] *U. S. Statutes at Large*, 4:472. The earlier laws referred to are those of Mar. 1, 1817 and Feb. 23, 1822.

[3] J. A. Williamson, Commissioner of the General Land Office, to Zachariah Chandler, Secretary of the Interior, Jan. 24, 1877, in General Land Office Records, Letters Sent, National Archives.

[4] Moses M. Strong, U. S. Attorney for Wisconsin Territory, Madison, to H. D. Gilpin, Solicitor of the Treasury, Nov. 20, 1838, in the Strong Lumber Papers, State Historical Society of Wisconsin; and A. H. H. Stuart, Secretary of the Interior, to the Solicitor of the Treasury, Apr. 23, 1851, Nov. 18, 1851, in Files of the Secretary of the Interior, Letters Sent, National Archives. By 1854, there were four agents in the field, two in Michigan, one in Wisconsin, and one in Iowa. J. A. Williamson, Commissioner of the General Land Office, to Zachariah Chandler, Secretary of the Interior, Jan. 24, 1877, in General Land Office Records, Letters Sent, National Archives. See also Paul Wallace Gates, *The Wisconsin Pine Lands of Cornell University* (Ithaca, N. Y., 1943), 70–73.

[5] D. C. Goddard, Acting Secretary of the Interior, to W. K. Sebastian, U. S. Senate, Aug. 28, 1850, in Files of the Secretary of the Interior, Letters Sent, National Archives.

[6] A. H. H. Stuart, Secretary of the Interior, to Solicitor of the Treasury, Mar. 4, 1852; and A. H. H. Stuart to the President of the United States, June 4, 1852, in *ibid.*

the counsel of the Commissioner of the General Land Office in administering the small force of agents working on the forest frontiers.[7]

During these early years, the agents in the field were progressing no better than their superiors. Special agents were received with little warmth when they traveled into communities where timber had been for years a free good among farmers, loggers, and choppers. Armed with instructions to order the seizure of stolen timber wherever it could be found and to act with the United States district attorney in the prosecution of trespassers, the timber agents stepped squarely against the stronger law of custom and public opinion.[8]

Letters of complaint charging timber agents with malice, violence, and blackmail streamed into the Department of the Interior. Of agent Isaac W. Willard, a lumberman from Michigan wrote: "... the timber agent Openly declares He will settle with no man on the Manistee River on ... [any] other Condition ... [but] to Strip them of their All ... and Says He will not leave a man there worth ten cents when he gets through with them. ..."[9] One old shingle weaver protested against the seemingly arbitrary seizure of property in these words: "When ... [the agent] came to seize my lumber, I told him that I had lived under 3 Kings reigns and a part of a Queens reign and I never [did] see property sized [*sic*] and taken away from poor people as they did from us." When the old man asked if there were a higher authority to which he could appeal, the agent answered that there was no one higher than he except God Almighty.[10]

To these charges the agent answered by reciting stories of the indignities which had been heaped upon officers trying to enforce the law in the wilds of Michigan; of loggers banded together in associations to defy law and intimidate informers; of men who untied government boats and put them to the torch; of attempts to burn down an inn where the timber agents were sleeping; of masqueraders who tried to reenact a Boston Tea Party at Bar Lake, Michigan.[11]

Warned by the rumblings from Congress that were sounded in the letters of inquiry and protest coming from the members of that body, and spurred on by reports of serious financial mismanagement on the part of the agents, the Secretary of the Interior in 1855 decided to abolish the timber agencies in favor of a more "economical and less objectionable" system.[12] But since there was no appropriation for the suppression of depredations, the possibilities of a better policing of the public domain were seriously limited.

On December 24, 1855, after a lengthy exchange of opinions between the Secretary and the Commissioner, the General Land Office issued a circular that was to govern the administration of the timber agency for more than twenty years. By assigning to the Commissioner direct responsibility for the suppression of timber trespass, the Secretary did little more than acknowledge a situation that had existed for many months.[13] The old agents were dismissed, and the work in the field fell to the registers and receivers in the local land offices. Since their instructions limited them to investigations of cases already known to them, the local officers hardly constituted the force necessary to change the bent of the pioneers. They might appoint a deputy to gather evidence in case of emergency, but the emphasis was on a sparing use of funds and a cautious exercise of the powers delegated to them.[14]

Unfortunately for the American people, the registers and receivers accomplished few of the things that a rather optimistic Commissioner hoped they would. Pushed by the routine business of their office, restricted by a lack of money for investigation, blocked on all sides by the stubborn frontier population, the local land officers did

[7] *Ibid.*; A. H. H. Stuart, Secretary of the Interior, to Timber Agents, June 3, 1852, in *ibid.*

[8] R. C. McClelland, Secretary of the Interior, to Isaac W. Willard, Paw Paw, Mich., Mar. 14, 1853, in *ibid.*

[9] Roswell Canfield, n. p., to John Wentworth, n. p., Dec. 24, 1853, in General Land Office Records, Letters Received, National Archives.

[10] Sworn Statement of Thomas Phillips, Clay Banks, Oceana County, Mich., Mar. 18, [1854], in *ibid.* In *The Great Forest* (New York, 1947), 167–168, Richard G. Lillard relates other incidents in the career of "Ike" Willard as timber agent in Michigan.

[11] Sworn Affidavit of Otis C. Fall, Wayne County, Mich., May 30, 1854, in General Land Office Records, Letters Received, National Archives.

[12] R. C. McClelland, Secretary of the Interior, to Commissioner of the General Land Office, Nov. 24, 1855, in Files of the Secretary of the Interior, Letters Sent, National Archives.

[13] J. A. Williamson, Commissioner of the General Land Office, to Zachariah Chandler, Secretary of the Interior, Jan. 24, 1877, in General Land Office Records, Letters Sent, National Archives.

[14] General Land Office Circular, Dec. 24, 1855.

at best a haphazard job of law enforcement. Many of the more conscientious, aware of their ineffectiveness, expressed their opinions in letters to the Commissioner. A receiver at LaCrosse who was trying to restrain the farmers around Tomah from slashing out all the young timber in the neighborhood to make hop poles voiced his irritation with the system in these words: "How it is possible for us to prevent . . . [trespass] I am unable to see, unless a sufficient number of special agents can be appointed and paid. This whole matter is a troublesome one. It is very unpleasant for any person to feel that a duty is imposed upon him that he cannot perform."[15]

To such complaints from his officers and to those who protested by letter and editorial the growing prevalence of timber trespass, the Commissioner had no happy answer. Since no funds were appropriated for such a disposition and no office was created for such a function, better protection for the public timber would have to wait on legislation.[16] And this admission of impotence came in the decade of the sixties when timber cruisers were ranging far and wide in the white-pine stands of the Lake States, when the damp dark logs floated endlessly down the streams into the booms of Saginaw, Muskegon, Stillwater, and Eau Claire.

An attempt had been made in the circular of 1855 to explain to the local officers the rules by which they were to be guided in the performance of their timber duties. Although the legal procedure was briefly outlined and the policy of the Department of the Interior was at least suggested, many of the details were left to the discretion of the register and receiver. A few energetically elicited opinions from the Commissioner as cases arose; some ignored the directions and mislaid the circular; many were confused about the specific application of orders that the men in Washington had thought so clear.

Seizure and sale of timber illegally cut on public land were the most onerous parts of the assignment given to the local officers. In a country where officers had to travel great distances through areas inhabited only by loggers and Indians, identifying logs as government property was in itself a hardship. Then after the logs were seized and offered for sale, a game of wits was played between officer and lumberman. Combinations to set prices, intimidation of possible competitive bidders, and nonattendance of sales were resorted to by the men who wished to see the effects of the seizures nullified. Many a lot of logs rotted where they lay for want of a bidder. In at least one instance, the register and receiver were sued as private persons for seizing logs, and the case was carried to the Supreme Court of Michigan.[17] The Commissioner, perhaps realizing the carelessness with which the trespass business was being conducted, urged on his officers great caution in making seizures, and thus encouraged their natural disposition to do nothing.[18]

If seizure and sale were not a restraining influence upon the wood-using population, the system of compromise that operated concurrently with it not only failed to restrain but in some measure encouraged disregard for the law. In spite of the complaints of the lumbermen that the excessive rates of stumpage demanded of innocent trespassers were ruining the lumber business, the student can read in the record a willingness on the part of wood users to pay the various rates imposed by the Federal Government as the cost of the raw material. The distinctions between guilty and innocent trespassers were too fine for the men in the land offices who made the immediate decisions, and compromise became through this twenty-year period a license to trespass.

In 1877 there came to the Department of the Interior Carl Schurz, a Secretary who was perhaps more concerned than his predecessors with the failure of the Federal Government to prevent timber depredations.[19] The General Land Office issued in May a circular notifying the registers and receivers that the orders given in 1855 were revoked. Clerks detailed from the General Land

[15] S. S. Burton, Receiver, Land Office, LaCrosse, Wis., to Jos. Wilson, Commissioner of the General Land Office, Jan. 10, 1868, in General Land Office Records, Letters Received, National Archives.

[16] J. M. Edmunds, Commissioner of the General Land Office, to Hon. T. O. Howe, Green Bay, Wis., June 9, 1865, in General Land Office Records, Timber, Letters Sent, National Archives.

[17] J. M. Edmunds, Commissioner of the General Land Office, to Wm. L. Webber, Attorney, East Saginaw, Mich., Jan. 2, 1863, in *ibid.*

[18] J. M. Edmunds, Commissioner of the General Land Office, to Osmond Tower, Grand Rapids, Mich., Oct. 7, 1863, in *ibid.*

[19] For an analysis of events in the General Land Office from 1875 to 1890, see Harold H. Dunham, "Some Crucial Years in the General Land Office," *Agricultural History*, 11:117–141 (1937).

Office were assigned to investigate cases of trespass and instructed to report to the Commissioner, who would then pass his recommendations on to the Secretary of the Interior. By working with the district attorneys in the areas to which they were assigned, the clerks were to act directly in gathering evidence that could be used to prosecute trespassers in court.[20]

A pamphlet from the General Land Office published in 1883 gave to these clerks detailed for timber duty the title of "special timber agents." By outlining the laws governing the public lands, discussing the policy of the Department toward timber trespass, and enumerating the duties of special agents, this circular made more explicit the directions given in 1877.[21] Since both the agents operating under the Solicitor and the local land officers had been confused about the scope of their activities, these two circulars did much to bring the new agents into closer understanding with the administrative officials in Washington.

The close supervision exercised over the special agents did not eliminate charges of fraud that had been made against the agents since the first representatives of the Department had visited the pineries of the Lake States. Although petty cases of malfeasance were overshadowed during this period by the sorry revelation of how the surveyors general of Minnesota had executed the special trust confided in them, the timber agents were accused of a variety of sins—using their office for personal gain, allowing themselves to be influenced by community pressure, selling out to the lumbermen.[22] Action was taken in some of the cases, but it was difficult for the Commissioner to unravel the web of intrigue that surrounded most of the reports.

During the decades in which the special agents traveled across the snows and through the rains of the north country to enforce the law of the Federal Government, the emphasis in timber depredations shifted from ignoring the law to consciously evading it. In the early years when the agents rarely visited the timbered areas, the greatest depredations were made on unoccupied lands. After the Government increased its vigilance, and particularly after the passage of the Homestead Act, lumbermen made use of the settlement laws to acquire a show of title to the land on which they cut.

The recitation of the ruses of the preemption broker, the guilt of the local land officer, the collusion of lumberman, is now a familiar one. One timber agent estimated that in Minnesota 99 percent of the homestead and preemption entries were made for the timber alone.[23] Another wrote from Duluth that in spite of the activities of seventeen special agents, evasion of the settlement laws continued. "... a land law," he concluded, "which was good for Cook Co., Illinois is not a good one for Cook Co., Minnesota."[24] Most of the agents who ventured a solution recommended that the land be sold to the highest bidder before fire and theft destroyed its value, but one lone agent did suggest that in areas like northern Minnesota it might be wise to create forest reserves.[25]

As the reports of the agents on illegal cutting piled up in the General Land Office, the commissioners began to question the distinction between innocent and guilty trespassers that had formed the basis for compromise since 1860. How could an agent determine the true intent of a trespasser? Was the lumber company which encouraged the entry or the homesteader who perjured himself to make it ultimately responsible? Should the man who cut the logs or the man who received them for manufacture pay the greater penalty? And should any weight be given to the arguments of those who

[20] General Land Office Circular, May 2, 1877.

[21] Instructions to Special Agents of the General Land Office, 1883.

[22] Isaac Wood, Custer, Mason Co., Mich., to the General Land Office, July 29, 1883; S. M. Stockslager, Acting Commissioner of the General Land Office, to F. W. Worden, Special Agent, Reed City, Mich., Jan. 28, 1888; Jos. E. Squire, Garden, Mich., to Geo. Carmichael, n. p., Jan. 7, 1898; and H. M. Lewis, U. S. Attorney, Western District of Wisconsin, Madison, to J. A. Williamson, Commissioner of the General Land Office, Dec. 8, 1879, in General Land Office Records, Letters Received and Letters Sent, National Archives.

[23] S. M. Stockslager, Assistant Commissioner of the General Land Office, to D. LeGore, Special Agent, Duluth, Minn., Apr. 15, 1886, in General Land Office Records, Timber, National Archives.

[24] Fred W. LeSueur, Special Agent, Duluth, Minn., to the Commissioner of the General Land Office, Sept. 24, 1894, in General Land Office Records, Letters Received, National Archives. Protests against the illegal use of the settlement laws came from the organs of the lumber industry as well as from the Government. See the views expressed in *Mississippi Valley Lumberman*, Sept. 2, 1887, p. 4; July 6, 1888, p. 1; Feb. 21, 1890, p. 1.

[25] Fred W. LeSueur, Special Agent, Duluth, Minn., to the Commissioner of the General Land Office, Sept. 24, 1894, in General Land Office Records, Letters Received, National Archives.

said that the Government through past decisions had established the principle that anyone might trespass on government land and settle the obligation by paying stumpage.[26]

While the General Land Office was in the hands of men eager for reform, it became evident that the Government intended to do more than recover the nominal value of the land. Secretary Schurz, in one of his first letters on the subject, declared that it was the intention of the Department to put an end to timber trespass by depriving the depredators of all the profit from their transactions and by criminally prosecuting those who organized and directed the illegal activities. "As long as . . . [the trespassers] are permitted to hope," said Schurz, "that even after the seizure by government officers . . . they may, by way of compromise, acquire rightful possession of the logs . . . the temptation to continue the depredations will not cease. . . ."[27]

In practice few criminal suits were instituted against persons who did not actually do the cutting, and still fewer criminal convictions were secured against trespassers. But from the companies that received the logs, thousands of dollars were collected by court action and voluntary compromise for the Treasury of the United States. Again and again, commissioners repeated that it was the responsibility of the lumber manufacturer to inquire into the right of homesteaders, preemptors, contractors, and railroads to sell the logs. By accepting logs cut from lands whose title was still in the Government, a company made itself liable to civil action.

By the end of the nineteenth century, cases of petty trespass predominated in the reports of the timber agents. Some of the Indian reservations still held promise of a harvest, but most of the timberlands of the Lake States had been cut over or had passed from government ownership. From the lands of these States went the men of enterprise to cut out new stands in the West and in the South. For good or for ill, the age was over; the story was told.

From the beginning of settlement through more than two centuries of expansion, the American people formed certain attitudes toward the forests that stretched to the boundless West. Limitless in number, trees had value only when men cut them down, drove them down a stream, sawed them into boards at a mill, and sold the lumber in a market. When there was a choice between taking timber from unoccupied land and entering the land, many lumbermen carried out the frontier tradition of helping themselves to what they needed. The Department of the Interior tried with varying degrees of success to stop up the biggest holes in the dike. But against the force exerted by a highly competitive industry, these sporadic efforts to protect the timber and to enforce the settlement laws were all but lost. When the last forests were reached, the lumber industry began to consider a new type of forest land management which would enable them to conduct their business on a permanent basis.

[26] Thos. Lowry, Minneapolis, Minn., to Carl Schurz, Secretary of the Interior, Apr. 18, 1879, in General Land Office Records, Timber Trespass Reports, National Archives.

[27] Carl Schurz, Secretary of the Interior, to Charles Devens, Attorney General, Aug. 29, 1877, in *ibid.*

WHICH *PUBLIC DOMAIN* DO YOU MEAN?

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In the vocabularies of all of us are words or terms whose meanings we are certain we know, although our understanding of them is derived from contextual usages rather than from dictionary definitions. *Public domain* for me was such a term.

When some years ago I undertook to write a doctoral dissertation on a phase of public-domain history, there seemed no uncertainty regarding what was to be written about. The problem at that time was what to write about it. It was not until the stage of composition was reached, and with it the need of an exact definition of the basic term, that the doubts which had made nebulous appearance from time to time in the course of my research began to take form. In part I attributed inability to reconcile the different connotations encountered to insufficient comprehension of the subject; in part I blamed the obscurities of academic and official jargon. With the hope that further knowledge would bring understanding, I selected the definition of an accepted authority and turned to ironing out other equally pressing perplexities.

Available source material exhausted, the dissertation completed, and the immediate purpose of writing it satisfied, I put it away until there was opportunity for the inevitable revision. A later rereading of the manuscript brought back the earlier doubts. This time it seemed essential to resolve them. In seeking a satisfactory definition I referred again to sources already used and sought new ones; I looked into all manner of dictionaries and encyclopedias, wrote letters, and consulted legal authority. The findings at least explained my confusion but did not provide the single and concise definition desired. The difficulty is that in United States' usage there is not one public domain; broadly speaking there are three, with further gradations of meaning to confound the reader.

What is the public domain? In the first place, it is not a common term. The usage in the United States is largely academic and official; yet there is no official or clear-cut legal definition. If you consult a dictionary, you may sometimes find *public domain* followed by the notation, "public land, U.S."[1], or you may not find it at all. Most encyclopedias do not list it. Its basic meaning is derived from its components: *public* in the sense of "belonging to . . . a nation, state, or community at large;—opposed to *private*"; and *domain*, "An estate held in possession; landed estate"—hence, a publicly owned landed estate.[2] None of the American meanings quarrel with this concept; they qualify it.

In its most general, though not its widest, application, the public domain embraces *all* land owned by a government, in this case the Government of the United States (Definition 1).[3] This definition has adherents, although it is the least common of the three in the United States. In this country a peculiarly national usage has evolved, based on what has come to be known as "the original public domain," made up of the large-scale territorial acquisitions of the Government—the land gained by cession, exploration, treaty, and purchase from foreign powers. This concept is responsible for the other two meanings

[1] *Government land* was the popular synonym. What is said about the *public domain* in this article applies to both terms.

[2] *Webster's Collegiate Dictionary* (ed. 5, Springfield, Mass., 1936).

[3] Stephen S. Visher, "The Public Domain and Its Disposal," in *Our Natural Resources and Their Conservation*, ed. by A. E. Parkins and J. R. Whitaker (New York and London, 1929), 21; and Benjamin Horace Hibbard, *A History of the Public Land Policies* (New York, 1924), 7. On the other hand, see 78 Congress, 1 session, *Senate Report 404*, 10, which says "there is a clear-cut distinction between the public domain and lands under Federal ownership."

As general references for the paragraphs which follow, see *The Cyclopedic Law Dictionary* (Chicago, 1922), 821; *American Jurisprudence* (San Francisco and Rochester, N. Y., 1942), 42: 794–795; *Words and Phrases, Permanent Edition* (St. Paul, Minn., 1940), 35: 90-92; and *Black's Law Dictionary* (St. Paul, Minn., 1933), 607.

previously referred to. One applies the term to what is left of the original public domain (Definition 2). The other is limited to that part which at any time was available for sale, settlement, or other disposition under the general body of land laws (Definition 3). This meaning has had the widest currency, at least during the past century, although the synonyms *public land* and *government land* carried the idea much more clearly.

These three meanings seem to have followed an evolutionary pattern. At the inception of the public domain, *i.e.*, at the time of the cessions by the Original States, the land thus acquired was all that the Federal Government owned. For a brief period only, the public domain of all federally owned land (Definition 1) and that of the large-scale territorial acquisitions (Definition 2) coincided. In 1791 Maryland and Virginia ceded land on the banks of the Potomac River to form the District of Columbia.[4] This area has not been considered a part of the public domain.

There are a number of reasons why the accepted meaning of the term came to cover only the large areas that the Federal Government acquired: (1) the vast acreage involved (and the small acreage, until recent years, of other land acquisitions);[5] (2) the fact that for most of our national history it has been the only category of federal land for which a permanent and continuing record exists;[6] and (3) the important contribution that it made to the development of the country.

The developmental function of the public domain also accounts for a further delimitation of the meaning. As the public domain of large-scale acquisitions and the public domain of all federal landed property (Definitions 1 and 2) appear to have been the same thing in the beginning, so the public domain consisting of the remaining areas of the original public domain (Definition 2) and the public domain of land intended to be disposed of (Definition 3) were, for a time at least, the same.

In the early years reservations were few and for the most part were regarded as temporary expedients in aid of settlement, which was chiefly the case with the frontier army post, the principal type of reservation before 1890. Many of them were beyond the knowledge of—because remote in distance from—the citizen most likely to have reason to use the term. The public domain he knew was just beyond the fringe of settlement and was, or in his opinion should be, available for him to enter. This interest was identical with the chief function the public domain was ever to perform, that of promoting settlement. Otherwise stated, the most limited yet the most widely known public domain consisted of those areas of the original public domain which had not been appropriated (sold, granted, patented, or entered) or reserved for a public purpose, *i.e.*, the land under the supervision of the General Land Office.

The first sizable permanent reservation of purely government land was Yellowstone Park (2 million acres), created in 1872. In 1880, the areas segregated from the public domain consisted of around 150 million acres of Indian reservations (not publicly owned property) and 3 million acres of military reservations. Yosemite Park was created in 1892 from land donated by the State of California. In the same decade occurred two contrasting phenomena affecting the type of reservations—a reduction in the area of temporary and nonpublic reservations accompanied by a pronounced increase in those intended to be permanent. Many Indian reservations were ceded to the Federal Government and thrown into the public domain for entry; many military posts were abandoned, their function of protecting settlers from hostile Indians having expired. On the other hand the movement toward large permanent reservations received its greatest impetus by laws passed in 1891 and 1897, which established the present national forest system.

By 1900 the reserved area covered 146 million acres, of which 78 million were in Indian reserva-

[4] The Virginia cession for this purpose was later reconveyed, and the present District is constituted from the Maryland cession alone.

[5] A superficial examination of Table 10 in the U. S. Bureau of Agricultural Economics, *Federal Rural Lands* (Washington, 1947), 19, reveals that of nearly 50 million acres of "acquired lands" in federal ownership at least 42 million have been added by agencies established since 1911, by laws known to have been passed since that time, or by other later means as indicated in footnotes.

[6] It is an anomaly that before 1936 no inventory had ever been made of all the land in federal ownership. See *Federal Ownership of Real Estate and Its Bearing on State and Local Taxation* (76 Congress, 1 session, *House Document 111*, Washington, 1939). Prior to that time it would have been impossible to say how much land the Federal Government held title to outside of public-domain properties because of the curiously haphazard system of record keeping for its landholdings which it had thus far maintained.

tions; the remainder was accounted for as follows:

Public-Land Reservations, 1900	*Million Acres*
Forest reservations	46
National parks, etc.	4
Military and similar reservations	1
Withdrawals in aid of pending legislation (contemplated national parks, forest reservations, etc.)	17
Total	68

At the same time, land remaining open to entry and settlement amounted to 558 million acres.[7]

The third definition had perhaps the widest currency at the turn of the century, when it appears to have been generally used except by the Department of the Interior. After that the direction was reversed. Already a start had been made in the system of carving national parks and forests out of the public domain. To those were added as the century progressed the other permanent reservations, the whole of which was to cut deeply into the acreage remaining available for disposition. By 1910 the area of national forests had increased to 166 million acres, although the national parks remained much the same. Vacant public land had been reduced to approximately 340 million acres.[8] By 1934 total reservations reached 244 million acres, while the vacant area was 168 million acres.[9]

As more and more reserves came to be created, a question seemed to occur to some writers: Were these reservations a part of the public domain? If not, into what category of federal landownership did they fall? Gradually, the meaning of the term was extended in the direction of including once more all of the remaining lands of the original public domain—Definition 2. Nevertheless, the greater number of users adhered to Definition 3, because they found the wider meaning inapplicable to the whole category of reserved areas.

[7] Thomas Donaldson, *The Public Domain: Its History, with Statistics . . .* (3d revision, Washington, 1884), 247, 254; U. S. Department of the Interior, *Report, 1900*, 1: 80, 87–95, 227; *Report of the Public Lands Commission* (58 Congress, 3 session, *Senate Document 189*, Washington, 1905), 284, table xxv.

[8] U. S. Department of Commerce and Labor, *Statistical Abstract of the United States, 1910*, 26, 160.

[9] U. S. Department of the Interior, *Report, 1934*, 73, corrected in accordance with adjustments supplied by the Bureau of Land Management in an appendix to a letter of Mar. 10, 1948.

After 1911, with the passage of the Weeks Act authorizing the purchase of land for the extension of the national forest system, a series of similar enactments enabled the Federal Government to purchase or accept donations of private or State land for inclusion within the several categories of reserves, so that it soon became apparent that as a whole they could not properly be considered public domain. The whole muddled situation was set forth in 1929 by a writer in the *Philadelphia Inquirer*.[10]

> There is good reason for the public confusion concerning the nature of the public lands which President Hoover suggests should be placed under the control of the States in which they are located. The diversity of Federal jurisdiction has made it impossible to know the extent of our national real estate holdings. The public domain is only part of a whole which lacks any descriptive name. Besides the General Land Office, which controls the public lands or public domain, there are other bureaus or offices which administer the national forests, reclamation projects, national parks, national military parks, national monuments, Indian reservations, lighthouse reservations, water power, oil and mineral withdrawals and Federal game preserves, and wild life sanctuaries.

If it were not exasperating enough to have three definitions all with a degree of acceptance, there are shadings of meaning within each which give somewhat altered connotations. Definition 1, for instance, is sometimes extended to include State, county, and municipal lands, on the assumption that *public*, being the antonym of *private*, denotes all land not in private ownership. Furthermore there are those who hold that Definition 1, the public domain of all federal land, and Definition 3, that of land open to entry or other disposition under the land laws, mean the same thing, on the theory that what the Government owns it may sell or otherwise dispose of. It is true that the Congress does have the power to sell or do anything it wants with even the land upon which the Capitol in Washington stands, however unlikely it is that it should exercise that power, and that it has from time to time sold land previously acquired for administrative or other purposes. That does not make such land public land. The general body of public-land laws does not apply in such cases, specific enactments being required.

Definition 2 has in recent years been interpreted

[10] *Philadelphia Inquirer*, Sept. 4, 1929.

as meaning all of the original domain of which title has never passed from the Government. As generally used formerly, land entered under any law or selections made in accordance with grants were treated as "appropriated" (non-public-domain) land, even though title had not passed from the Government. Such areas were neither enterable nor reserved for a public purpose (another way of expressing Definition 2) and hence not a part of the public domain, even though noncompliance with the terms of the grant or the law under which entry was made later might return them to public-domain status.

One meaning would have the public domain of any of the definitions cover the whole area—water as well as land. The usual practice has been to include only the land-surface area, which raises the question of where the tidelands, now so much in the news, belong. The *World Almanac* includes the total area, land and water, within its definition, although it bases its statistics only on the land-surface area.[11] It also does by definition what the General Land Office always did in statistical practice; it extends the original public domain to cover the entire area over which the United States Government assumed sovereignty by virtue of treaties, cessions, exploration, and purchase—meaning the land-surface area of the original public-domain States.

Precisely interpreted, the original public domain did not include the entire area over which the Federal Government gained sovereignty through these large additions of territory. The deeds of cession of their western lands by Virginia and Connecticut reserved ownership of certain portions of the present States of Ohio and Indiana. In every added area settlements were already established in which valid titles, supported by deed or grant from a previous sovereign, were covered by the instrument of transfer. Indian rights antedated those of prior sovereigns. It was a matter of decades after each acquisition before the extent of valid private claims could be determined and Indian rights limited and quieted. Consequently, the General Land Office had to base its records on the whole area acquired.

The most inclusive figure is that of the General Land Office and its successor, the Bureau of Land Management. This is 1,442,267,520 acres, as of the 1940 census. The figure changes occasionally as new computations of the land area of the country are made.[12] That of the Bureau of Agricultural Economics is 1,400,000,000 acres.[13] This figure appeared in a table showing categories of public-land disposals. The Bureau of Agricultural Economics deducted from the General Land Office total the Virginia and Connecticut reservations and the validated private claims but was not able to do this for the Indian lands. Existing reservations are known, and the whole area which had been set aside for the tribes can be estimated; yet the statistics of Indian-land disposition have been so irretrievably interwoven with those for public-domain lands that it is impossible to segregate them in any statement primarily concerned with types of disposal. The Bureau of Agricultural Economics' total of public-domain and Indian lands is 90,000,000 acres higher than the original public-domain figure arrived at by Benjamin Horace Hibbard, the foremost non-governmental authority on the public domain. His total, 1,309,591,680 acres,[14] lies between the Bureau of Agricultural Economics' figure and the approximate area to which the United States gained clear title, if it can be assumed that the entire area of land credited to the Indians was not greatly in excess of the 151,436,362 acres of reservations in 1880.

The *World Almanac*'s definition is clearly an interpretation of the public-domain statistical tables of the old General Land Office and its successor, the Bureau of Land Management. It is not, however, the definition (or any of the definitions) advanced by either of these agencies or by the Department of the Interior, the executive branch of the government charged with the supervision of the old public domain. There follow definitions either by these or their representatives, or attributed to them, which for the most part go back to that of Thomas Donaldson in *The Public Domain:* "The public domain embraces lands known in the United States as 'public lands,' lying in certain States and Territories known as the 'Land State and Territories,' and was acquired by the Government by treaty, conquest, cession by States, and purchase. . . ."[15]

[11] 1948 edition, 286.

[12] U. S. Bureau of Land Management, *Report of the Director, 1947*, statistical appendix, Fn a, page 2, and table 2, page 4.

[13] U. S. Bureau of Agricultural Economics, *Federal Rural Lands*, 4.

[14] Hibbard, *A History of the Public Land Policies*, 31.

[15] Donaldson, *The Public Domain*, 10, 13.

The 1898 report of the Secretary of the Interior gives the following: "The public domain, exclusive of water surface, comprises the lands now owned or heretofore disposed of by the United States acquired by cessions from the original States, purchases from France, Spain, Mexico, Russia, and Texas; by treaty with Mexico, and by discovery and treaty in the Oregon Territory."[16]

On the other hand, the two following definitions, emanating from the General Land Office, express the narrower limitation of the term: "The expression 'public lands' or 'public domain' in the United States is used to include such lands of the United States as are subject to sale or other disposal under general laws and are not reserved or appropriated for any public purpose."[17]

Public lands is used as synonymous with public domain in the *Statistical Abstract of the United States*, published annually by the Bureau of the Census of the Department of Commerce. Its pertinent material came formerly from the General Land Office and comes now from its successor, the Bureau of Land Management. Thus the public domain comprises "only those Federally owned lands to which the general body of public land laws apply.... In general, it includes the lands acquired by the United States through cession and treaty and *certain other lands declared by the Congress specifically to be 'public lands,'* that is, subject to the public land laws."[18]

Secretary Julius A. Krug of the Department of the Interior, in his 1946 report, referred to "the last remaining part of the 'public domain'" as including grazing districts, Indian land, national parks, wildlife refuges, game ranges, and other lands, but as excluding national forests.[19] This domain, though larger than that of Definition 3 is smaller than that of Definition 2 in that it is restricted to the public-domain land under the jurisdiction of the Department of the Interior. The same differentiation was made by Representative A. M. Fernandez of New Mexico in public-land hearings in the same year, when he pointed out that "there are some differences between the public domain lands and lands administered by the Department of Agriculture."[20] It must be said, in behalf of the Secretary, that his 1947 public domain was larger and coincided in definition, if not in area, with that of his predecessor of 1898.[21]

The following definitions by the Bureau of Land Management may be considered those currently favored by the Department,[22] and as nearly official as any we have at this time, although the definitions by J. D. Wolfsohn and the *Statistical Abstract*, already cited, reveal that even in the Bureau of Land Management there is a lack of unanimity on the subject:

Acquired Lands. Lands in Federal ownership which are not *public-domain lands*, having been obtained by the Government by purchase, condemnation, or gift or by *exchange* for such purchased, condemned, or donated lands or for timber on such lands.

Grazing-District Lands. Lands which are subject to administration by the Bureau of Land Management under Section 3 of the *Taylor Grazing Act.*

Original Public Domain. All the lands, regardless of whether they are still in Federal ownership or not, which the Federal Government obtained by cession from the 13 Original States (1789–1802), by the Louisiana Purchase (1803), by the cession from Spain (1819), by the occupation of the Oregon Territory (1846), by the Mexican Cession (1848), by the purchase from Texas (1850), by the Gadsden Purchase (1853), and by the purchase of Alaska (1867). The drainage basin of the Red River of the North, south of the 49th parallel and west of the cessions by the 13 Original States is a part of the *original public domain.* Authorities differ as to the method and to the exact date of its acquisition by the United States, some holding that it was part of the Louisiana Purchase. The area included within the present boundaries of the State of Tennessee, although included in the cessions of the 13 Original States, is usually not considered a part of the *original public domain* because, by the terms of its

[16] U. S. Department of the Interior, *Report, 1898*, 1: iv.

[17] J. D. Wolfsohn of the Bureau of Land Management and previously with the General Land Office. *Encyclopedia Americana* (1948 ed.), 22: 763.

[18] U. S. Bureau of the Census, *Statistical Abstract, 1946*, 159. I have added the italics to indicate the further extension of the definition.

[19] U. S. Department of the Interior, *Report, 1946*, 29.

[20] 79 Congress, 2 session, House Committee on the Public Lands, *Development of Oil and Gas on the Public Domain, Hearings ... on H. R. 3711 ... May 14, 1946*, 11–12.

[21] U. S. Department of the Interior, *Report, 1947*, 12.

[22] "Six terms which the Bureau of Land Management has informally adopted for general administrative purposes," supplied by Acting Assistant Secretary Mastin G. White to Representative Richard J. Welch, chairman of the House Committee on Public Lands, Apr. 30, 1948, and transmitted by Representative Welch to me, May 4, 1948.

cession, the State of North Carolina passed title to only a small acreage in that area to the United States. The United States in turn ceded its unappropriated lands to the State of Tennessee.

Public-Domain Lands. Original public domain lands which have never left Federal ownership; also, lands in Federal ownership which were obtained by the Government in *exchange* for *public-domain lands* or for timber on such lands; also, *original public-domain* lands which have reverted to Federal ownership through operation of the *public-land laws.*

Unreserved Public Lands. Public-domain lands which are not covered by a *withdrawal* or *reservation*; for general purposes, the *public-domain lands* which are not reserved except by the *general orders of withdrawal*, by a *mineral withdrawal for classification*, or by inclusion within a *grazing district* are considered *unreserved public lands* since they are subject to *classification* and *land disposal* under Section 7 of the *Taylor Grazing Act.*

Vacant Public Lands. Public-domain lands which are *unappropriated* and *unreserved.*

As for the Congress, the branch of the Government in which the Constitution lodges control over the federally owned lands, its use of the term *public domain* has been, if anything, looser than the examples cited. Many of the connotations which we have are the results of legal interpretation of the ambiguous uses of the term by the Congress in the laws it has passed.

Interestingly enough, while the weight of preference in the Department of the Interior is for Definition 2, legal opinion appears to take cognizance neither of it nor of the original public domain from which it derives. The following definitions are supported by the preponderance of court decisions:[23]

Public Domain. In its most general sense, all landed property owned by the public. In peculiar context it has been limited to unappropriated public lands.

Public Lands. In its most general sense, all lands owned by the government. In the more limited sense in which it is ordinarily used, it signifies such lands as are subject to sale or other disposition by the government under general laws.

With such a variety of recognized definitions to choose from, for the lay writer it has been a case of each man for himself. Frequently writers on the public domain, aware of the confusion implicit in the term, try to avoid its use; but even the most canny of them generally have to take recourse to it as a synonym. In so doing they are not always able to avoid the pitfall of making it mean different things in different places. Others start using it hedged about with qualifiers, so that their adopted definition is initially clear. They tend, however, to tire of the modifiers and drop them. The consequence is that the reader dipping into their works for reference purposes, rather than starting at the beginning, is frequently at a loss to determine which public domain they mean. Other writers set forth their chosen definition, then frequently proceed to use the term in one or both of the other senses.[24]

The public domain of Definition 3, the land open to entry, no longer serves its old purpose of promoting settlement. Its usefulness has been terminated more by the nature of the remaining area than by the acreage involved (around 170 million acres, which include however those reservations which are not reservations—the Taylor grazing districts—and other lands leased for grazing, some 142 million acres in all.)[25] The public domain of Definition 2 is nearly closed. It has been largely absorbed into the federal estate. In this it bulks much greater than any areas otherwise acquired; but there is little reason for maintaining the distinction between the two except for the vacant public lands and other limited areas to which the land laws still apply. This statement is made with full awareness of the recent lively campaign to liberalize the land-disposal policy of the Federal Government.

The controversy aroused by the proposals of the livestock industry for sale of the public domain brought out two divergent understandings of the ownership principle as implied by the term *public domain.* The conservationists, who opposed the aspirations of the users of the range, take the view that the public domain is the property of all the citizens of the country. The stockmen

[23] 68 Texas 547, 92 U. S. 761, and 98 U. S. 118, cited in *The Cyclopedic Law Dictionary*, 821. See also the dissenting opinion of Mr. Justice Reed in the California tidelands case as reprinted in the *Congressional Record*, 80 Congress, 1 session (1947), 93: 7558.

[24] Hibbard, *A History of the Public Land Policies*, 7, 27, 531; Roy M. Robbins, *Our Landed Heritage: The Public Domain, 1776–1936* (Princeton, 1942), 236, 297, 356–357, 410, 417–418, 423; *Report of the Committee on the Conservation and Administration of the Public Domain* . . . (Washington, 1931), 1–6, 10–12.

[25] U. S. Bureau of Land Management, *Report of the Director, 1947*, 7.

extend to the public domain of landed property the connotation implicit in the use of the term in connection with expired patents and copyrights, *i.e.*, that the public domain is public property in the sense that it may be exploited by those who avail themselves of the opportunity, with the benefits of such use accruing primarily to the user.[26]

Even though the old public domain is losing its identity,[27] it will be a subject of interest to historians for a long time to come. It remains to be seen whether they will continue to compound the old confusions of definition. Will the whole body of federal land inherit in common usage the place previously claimed by the proponents of the other two definitions? Such a tendency is perceptible. *Public domain* as a term, however applied, has the advantage of familiarity, and the familiar tends to perpetuate itself. On the other hand, the Bureau of Land Management and the Bureau of Agricultural Economics show a preference for *federal land* to designate the whole.

For myself, I like the public domain of Definition 2—only that portion of the original public domain which was at any time "vacant, unappropriated, and unreserved." For subsidiary terms, I favor (and admit that in so doing I am in one case distinctly quibbling):

Public lands. Synonymous with the public domain of my choice.

Public-domain lands. Federally owned lands (reservations, withdrawals, and vacant public lands) which derived from the original public domain.

Acquired lands. The usage accepted by the Bureau of Land Management (federally owned lands added otherwise than in the large-scale acquisitions).

Federal land. All the land the Government owns.

The point of this article is not to urge particular choices. It is to call attention to the divergent connotations attached to the term in accepted usage and to suggest to each future writer on the subject that he so present his material that it will not be necessary to ask, as I have had reason to do: "Which public domain do *you* mean?"

[26] "State Associations Meet," *American Cattle Producer*, April 1948, 13–14.

[27] No more surely is this indicated than in the fact that the General Land Office, which was the public-domain record office from 1812 to 1946, has been superseded by the Bureau of Land Management; that the Senate Committee on Public Lands and Surveys has become the new Committee on Interior and Insular Affairs, created in pursuance of Senate Resolution 179, adopted Jan. 28, 1948 (*Congressional Record*, 80 Congress, 2 session, 94: 605); and that the Chairman of the House Committee on Public Lands, Representative Richard J. Welch of California, on Jan. 6, 1948, called the attention of his Chamber to the fact that the present range of his committee's functions made its name a misnomer. (*Congressional Record*, 80 Congress, 2 session, 94, Appendix, A33).

THE FARMER IN MODERN ENGLISH FICTION

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The basic problem of the farmer in British fiction is epitomized in the following summation by the late Sir A. Daniel Hall:

> . . . farming, as an art or as a business proposition, has ceased to interest the British public. As part of the countryside it is less in the ordinary townsman's mind than bird-watching; the literature touching on farming is made up either of studies of 'characters', seen from without, or of nostalgia for the old customs and obsolete implements of the past.[1]

As this statement suggests, the problem has two aspects: first, the lack of interest in farming as an industry in fiction or out of it; and second, the romantic haze with which the rural scene is too frequently enveloped. Both are due to the dominance of urban society and culture.

In addition, it is not until the development of the novel as a suitable fictional medium and the advent of modern realism that the farmer is accurately and fully portrayed in British fiction. Even then he suffers by being subject matter for authors of less fame, if not ability. The novels used for this particular study are fairly representa-

[1] Sir A. Daniel Hall, *Reconstruction and the Land* (London, 1941), 89.

tive of the range of approach to the subject in modern English fiction, but the selection is not the result of a thorough examination of all possible sources.

The fictional farmer has had a difficult time emerging from the stock parts he has been called upon to play, ranging from the primitive peasant, sometimes ennobled by nature, to the comic country bumpkin. He has been, since 1700, to go back no further for examples, successively ignored by the neoclassicists, sentimentalized by the romanticists, and overshadowed during the reign of the Victorians.

The eighteenth century, which bulks so large in the history of agriculture, produced relatively few fictional treatments of the farmer. The literature of the major portion of the century was dominated by the neoclassic ideals held by men such as Alexander Pope and Samuel Johnson. It was a city-centered literature, rational and moderate. Change and emotion were equally suspect as disturbing and undesirable influences. The literary view of rural life was one of dilettante simplicity and unconnected with labor.[2] If here and there something else crept in, as in Oliver Goldsmith's *The Deserted Village* or Jonathan Swift's nostalgic yearning for the old yeoman in the account of the voyage to Laputa in *Gulliver's Travels*, it was the exception, almost an accident. The "methodized nature" of Pope's work was reflected in the concept of a divinely ordered caste society. Since the land worker was lower in the social scale than the urban-arbiters of literature, there was no reason to write about him. Consciously or unconsciously, the farmer was excluded.

It was during this same period, however, that the novel emerged. Samuel Richardson launched it with his novels of moral instruction. Following his lead, Henry Fielding in *The History of Tom Jones* used the medium as a vehicle for his philosophical preachments and digressions. In addition he presented the characters of Squires Western and Allworthy. These two are, along with Sir Roger de Coverley, the first prose fiction characters with a rural background that are worthy of note. But in these there was no hint of crops, marketing, plowing, sowing, or harvesting; they were gentlemen with estates. Even such an astute observer and thinker as Samuel Johnson reflected the townsman's attitudes toward the countryside, and such interest in it as he did display was largely academic and political.[3]

The literary successors of the neoclassicists, the preromanticists, and the romanticists, at least brought the agricultural worker into the literary picture, even if they did enshrine him as the embodiment of nature's dignity or cover him with sympathy as a victim of a decadent feudal aristocracy. Since the Romantic Movement was part of the general revolutionary spirit of the age, it is not strange that such a dual treatment was the result. At its best it gave the farming class such literary support as George Crabbe's picture of the poor in *The Village*, as Robert Burns' attributes of humanity and worth, and as the dignity of William Wordsworth's *Michael*. During this same period, the novel survived the Gothic gloom to emerge through Jane Austen and Walter Scott to maturity in the Victorian Age.

The farmer in fiction was unfortunate in that the novel did mature at that time, for it coincided with two trends, both of which tended to leave him on the literary sidelines. The first was periods of prosperity which robbed him of his possible sympathizers, and the second was the high drama of urban industrialization which overshadowed all the social scene.

It was not until Thomas Hardy published *Far From the Madding Crowd* in 1874 that the novel and the farmer really got together. Although Hardy marks the beginning of the modern era of literature, it is well to note the strong residues of the romanticism of Wordsworth and the morality of the Victorians in his work. Nor did he attempt to portray a farmer as a type or as a person whose work differentiates him from other people. The title of the work itself, coming as it does from Thomas Gray's *Elegy in a Country Churchyard*, gives an indication of his purpose. His characters are primarily people and only incidentally farmers. The rural atmosphere only serves to show that emotions were not the monopoly of the upper or the urban classes.

The main stream of English novels in the modern period has continued in this old tradition of ignoring the farmer or, if not him, his work and his economic problems. It is among the lesser lights that his biographers have been found. This is perhaps due as much to subject matter of less interest to the reading public as to the ability of

[2] For example, see John Pomfret's *The Choice*.

[3] A. S. Turberville, ed., *Johnson's England* (London, 1932), 1:261–262.

the authors. However minor a position the farmer has been given in fiction, he has been well treated by some authors. The nonfictional accounts of agricultural development, problems, and life can be heightened by the vivid and living, if not deathless, prose of these writers.

The farmer, real or fictional, is nearly always conservative and slow to change. The successive generations tenaciously cling to the traditions of their fathers and move reluctantly with the times when forced to do so. Because this is an important part of the fictional accounts used, a composite view of the English farmer and farming during the nineteenth century with some contrast to the post World War I period is presented in this study rather than a chronological development tracing the fictional view of the nonfictional course of events.

The Structure of Rural Society. The structure of English rural society during the nineteenth century as presented by the novelists is a rather rigid class system based upon the relation of the individual to the land. The distinctions of squire, farmer, and laborer are inevitably present and solidly rooted. Although hints are given of the feudal ancestry of these distinctions, the feeling of feudalism is absent. It is basically a capitalistic tone that dominates.

The squire occupies the top rung of the rural ladder. Generally he is depicted as the owner of a number of farms leased to tenants. His dominance is based on this rather than on the tradition of a manorial rule. He has largely lost all legal or political power but, since he retains ownership of the land, and usually the best land, he keeps his economic and social position.

Just beneath the squire is the farmer who, whether tenant or owner, controls and manages the actual operation of the land. The owners, since they have relatively greater freedom than the tenant, have some precedence on the social scale. Ownership, however, is not the sole criterion as the size of the farm unit certainly affects the individual status.

Below the farmer, on the bottom, is the agricultural laborer, and within this class further distinction is made upon the basis of the particular skill of the man concerned.

This system emerges as a result of the metamorphosis from the feudal manor to the modern estate. The most dramatic effect of the enclosures, which are the key to the shift, is the creation of the agricultural laboring class. This class is released from peasant serfdom and also from the security of that bondage. Not only does no land belong to them, but they belong to no land. Harold Webber Freeman has given a clearly etched picture of the worst results. His character, Matthew Elvin, a farm laborer, is jailed for having stolen a swede to feed his family. As an explanation of this fall of an inherently able man, Freeman wrote:

> To the world at large this [enclosures] was now just history, something done in the interest of society; but to Matthew and his father [formerly peasants] it had been misery, and society had treated them abominably. It had not only robbed and degraded them. It had made them slave for wages that would not support life and then thrown them on rates to keep them alive. It had reviled them as paupers, starved them, pulled down their houses and lodged them in barns and stables, driven them to work in gangs.

For a few fortunate peasants at the time of enclosures, the scene is not so dark. Freeman has also provided the example of Walter Clary, whose father, a peasant, becomes a tenant and prospers. The irony is that the latter's selection was based upon his wife's position as cook in the squire's household.[4] This view by Freeman, however, is the only really solid protest against the enclosures. The general theme is acceptance of the facts.

As for the other two classes, the squire, as previously mentioned, retains his place. The farmer, especially the owner, finds that enclosure works to his advantage, for it allows room for him to grow unimpeded by his less ambitious or less able neighbors.[5]

This social framework is marked by a definite lack of social mobility. Social barriers and the

[4] Harold Webber Freeman, *His Own Place* (New York, 1941), 13–14, 22. This story is about the rise of an agricultural laborer to ownership of a small farm, his work, his problems, and his eventual failure, which was due to the changing economic and social conditions following the first World War. Freeman, in this book and in the two others listed below, has given an excellent and detailed account of English farming and shown an excellent faculty for breathing life into his characters.

[5] Sheila Kaye-Smith, *Sussex Gorse: The Story of a Fight* (New York, 1916), 23–24. This is a highly dramatic story of a man's battle to win and subdue a particularly stubborn piece of land. His sacrifices, labors, and single-minded purpose border on the incredible, and nearly all the problems of English farming are presented in an intensified manner.

economic difficulties of raising enough money greatly restrict interclass movement.[6] It is more than this, however, for there is a strong undercurrent of contentment with the situation as well as of acceptance of its inevitability. This is most clearly seen in an examination of the ambitions of the three classes. The hopes and visions of each class are limited to rising to the top of their class and not transcending the boundaries. There are but two exceptions in the novels read. In one case a farmer receives a title but only because of his service to the nation. In the other, a laborer becomes a farmer on a small scale.[7]

The squire's ambitions are negative in terms of growth. This is, of course, obvious in relation to rural society. He has nowhere to go for he is already at the top. The desire to buy more land is absent. The desire to improve the land and help the people seems to be the limit of his vision.[8] This is the old hereditary landowner. The new town-bred and town-supported type have even less interest and ambition as farmers. At best, they seek to create a show place and, at the worst, a rustic retreat from the city.[9]

For the squire, his service is beneficent leadership of the people on the land. The picture given by the novelists delineates a benign paternalism. The Bardon family in Sheila Kaye-Smith's *Sussex Gorse* is an example. Even the enclosure of the fields is for the peoples' benefit, although they resist it. The last of the Bardon line dies after aiding a cottager sick with typhus.[10] The ideal of Jim Parish is the Hanoverian squire whose land and tenants are more important than himself. When the Alard estate is broken up, the family attempts to give the tenants the maximum benefit.[11] As a guardian of the land the squire's duty is to prevent waste and abuse. To his tenants and laborers, he is a source of capital and comfort, never aloof or inaccessible, spending all he can to improve their lot. The degree to which he adheres to this ideal is the measure of his success; the poor squire in the eyes of the rest of rural society is the one who neglects these responsibilities.[12]

The farmers, owner or tenant, are the most ambitious. Land hunger is the overt symptom of the urge to rise socially. Those who own land seek to add more and more to their holdings. Reuben Backfield's whole life is determined by his dream of owning the 300 acres of Boarzell Moor.[13] Adam Brundish's goal is to add 100 acres, as had his father, to Pond Hall. To his son he said: "And as soon as I've got a bit of cash in hand, I'm a-going to try to get ahold of a few more acres. We don't want none of these here motor cars and pianners."[14] Old Ben Geaiter has the same deep

[6] Freeman, *His Own Place*, 136, 186, and *Joseph and His Brethren* (London, 1934), 319–325.

The plot of *Joseph and His Brethren* revolves about the efforts of the five brothers to hold and work the farm for their young half-brother in the face of various misfortunes. It is especially interesting in its depiction of the division and specialization of labor among the five men and in its presentation of the hold of the land upon them in competition with the lure of the city, the army, and the new farm lands of Canada.

[7] Freeman, *His Own Place*, 136–137; A. G. Street, *Already Walks Tomorrow* (London, 1938), 412–413.

In *Already Walks Tomorrow* English farming is projected past the date of writing into the future and into a world-wide food crisis caused by the extension of drought and dust storms in all food-producing areas. The rather obvious message of the book is a warning to England that she could not be self-sufficient if cut off from her normal food sources without an extensive overhauling of her agricultural system. The threat of war with Hitler is mentioned but minimized. The general solution proposed is that agriculture be placed on a par with industry as a national problem and not relegated to a minor role in the nation's economic system.

[8] Sheila Kaye-Smith, *Ploughman's Progress* (London, 1933), 19–22. This novel depicts the decline of the skilled agricultural laborer in the period following the first World War when, because of the agricultural depression, there was no use for his skill. It also presents through the character of the local squire an explanation of the problems of farming during the period and the Hanoverian squire as the ideal leader for rural England.

[9] *Ibid.*, 40; John Galsworthy, *The Freelands* (New York, 1915), 29–30.

The theme of Galsworthy's book is marked by the recurrent use of the following quotation from Burns, "Liberty is a glorious feast." The basic plot concerns the efforts of three of the characters to aid the agricultural laborers in freeing themselves from the social tyranny of the local squire. The pictures of a dilettante landlord and of the use of the land question as a rung in the political ladder are also significant. Farming as an occupation, however, does not enter into the story.

[10] Kaye-Smith, *Sussex Gorse*, 3, 395.

[11] Kaye-Smith, *Ploughman's Progress*, 18, 29–31.

[12] Street, *Already Walks Tomorrow*, 200; Kaye-Smith, *Ploughman's Progress*, 84–85, 163, and *Sussex Gorse*, 124–125; Galsworthy, *The Freelands*, 51–57, 100, 240.

[13] Kaye-Smith, *Sussex Gorse*, 461–462.

[14] Harold Webber Freeman, *Pond Hall's Progress* (New York, 1933), 7–8. The dramatic elements of this novel are in the efforts of the young Italian peasant

dream of more land, a dream which he bequeaths to his five sons.[15] Even Deborah Mortimer, a woman who does not have the tradition of a farm life behind her, succumbs to the lure. For the tenant farmer the goal is to own the land he farmed for someone else. Abe Mortimer lived on his farm for thirty years, and "after twenty years of sweating and thrift and denial had finally bought the place with all the misgivings and guilty pleasure of buying something he loved and wanted and could not afford."[16] Even the successful and prosperous tenant farmer has the same urge.[17]

For the farmer the obligations are to his land and to his laborers. The land has to be used properly and efficiently if the owner, whether a squire or himself, is to receive continued benefit from it. To his laborers he has to be a kind and considerate master, conscious of their abilities and respectful of their judgments. Adam Brundish of *Pond Hall's Progress* is near the ideal portrayed. To his laborers and neighbors he is "the father of his people." In this aspect the farmer approaches the position of the squire when none is near or active enough to assume the position in the eyes of the people.[18]

The ambitions of the farm laborer are limited largely by a desire to rise within his class. Fred Sinden, the plowman, achieves his greatest hope when he takes over his father's place at Float Farm. His dream for the future is to bring up a son to replace him on the same job.[19] The examples of the two laborers who rise are notable in that both eventually fail—and both are exceptional characters rather than types.[20] Further evidence of these limits to the laborers' ambitions is implied in the frequent recurrence of a critical attitude among the laborers toward the new generation that derides their ambitions and scorns their work.[21]

The laborer, the recipient of the paternalism of both the squire and the farmer, returns loyalty and deference. Fred Sinden stays with Mr. Vincent although his wages are cut. Old Abner, the shepherd, is as concerned as the master with the farm's welfare through all the vicissitudes. For the land itself the laborer has as much respect and love as those who own it.[22]

The implications of this class structure and its sense of stability are those of mutual responsibilities and duties. The privileges and rewards of each class must be paid in service. The squire, the farmer, and the laborer all contribute and receive tribute and deference in ratio to their fulfillment of their noneconomic as well as their economic duties.

Such is the picture of rural society in theory: just, sound, undeviating. Failure on the part of the individual to conform is a result of weakness or poor character and is rewarded appropriately. This, however, ignores the problem of individual differences, and it is of individuals, not types, that reality and fiction are both made.

The Rural Individual. The demands of fiction

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wife of an English soldier to adjust to the standards of middle-class English farmers, and in her husband's efforts to maintain the family traditions of farming during the adverse economic conditions of the 1920s. Its primary contribution to the over-all picture of English farming is in its delineation of the financial burdens which caused so many failures during the period.

[15] Freeman, *Joseph and His Brethren*, 1, 279–280.

[16] H. E. Bates, *The Fallow Land* (London, 1932), 13, 186, 192–193. This novel is a well written study of the efforts of a woman to develop the small farm from which neither her father-in-law nor husband had been able to do more than extract a meager living. The psychological symbol of this struggle is her conquest of the stubborn fallow field which the men had neither the courage nor patience to till.

[17] A. G. Street, *Farmer's Glory* (London, 1932), 86. This novel seems to be a thinly disguised autobiography. It is divided into three major sections. The first is a nostalgic description of English farming prior to the first World War; the second is a narrative of Canadian wheat farming; and the third is a picture of English farming after the war. This is the best single account of English farming of the fiction listed here.

[18] *Ibid.*, 36, 66–72, 80–81, 100–101; Thomas Hardy, *Far From the Madding Crowd*, ed. by Carl J. Weber (New York, 1937), 112, 131–132; Freeman, *Pond Hall's Progress*, 124–125.

[19] Kaye-Smith, *Ploughman's Progress*, 3, 79.

[20] Freeman, *His Own Place;* Hardy, *Far From the Madding Crowd.*

[21] For examples, see Freeman, *Pond Hall's Progress*, 178–179; Adrian Bell, *Men and the Fields* (New York, 1939), 35–36.

Bell's book is a series of essays describing rural England, with emphasis upon a search for and recording of the disappearing elements of the countryside. This is done with skill and with a minimum of sentimentality. The book is exceptionally well illustrated in color as well as in black and white.

[22] Kaye-Smith, *Ploughman's Progress*, 98; Freeman, *Pond Hall's Progress*, 50–51, *passim*; Street, *Already Walks Tomorrow*, 285–287, and *Farmer's Glory*, 62–63.

are such that dramatic intensity is a necessary ingredient of the novel. Whatever the technique employed, one or more aspects of the tale must be unusual. This in itself makes each story a peculiar situation and colors the scenes for anyone seeking a general pattern upon which to base a composite. The task of transmitting a series of farmers into a farmer is therefore precarious. The process also carries with it a sense of regret at having to reduce the individual personalities to the oblivion of generality. Yet this is what must be done to extract from the novels a view of the English farmer and his life; and this can be done for, despite the variations of time, place, and plot, there are similarities in the individuals on which class types may be based.

To begin again with the squire, the most significant feature about his class is the relatively unimportant part it plays in the novels as a whole. Jim Parish, of Sheila Kaye-Smith's *Ploughman's Progress*, is the only one who has a feeling for both the land and the people.[23] The Bardon family of the same author's *Sussex Gorse* shows vaguely a sense of responsibility toward the people,[24] but the Bardons' principal function in the story is to act as an ineffectual and minor opposition to the struggles of the farmer, Reuben Backfield. John Galsworthy's Sir Gerald and Lady Malloring are in a similar position of being minor characters. They are presented as "model" landlords in the eyes of their class, as tyrants in the eyes of their laborers, and as slightly humanized versions of Robert Burns' "Unco Guid" to the reader.[25]

One result of both the paucity of examples and the part played by those who do appear is the feeling that the squire is a disappearing figure in the English rural scene. The best fictional example of this hypertrophy is the sale of the old Alard estate in *Ploughman's Progress* and its complementary picture of Parish's difficulties in holding his Cock Marling place together.[26] Another result is a feeling that the squire is not really a part of English farming and plays, at the most, a passive role.

The farmer occupies a far greater part in the novels and shows an equally greater sense of attachment to the land. There are two broad types, the "clean" and the "dirty" boot farmer. The former is a manager whose function is supervision and planning. The latter does these and the manual labor also. Success or failure, ownership or tenancy, or size of the farm do not always determine the classification. The determining factor more often seems to be the character of the individual. Because of this, there is an almost clear-cut diversion between the two types.

The clean-boot farmer is a pleasant and congenial man, respected and liked by his neighbors and by his laborers. His position is the mark of his ability. His failure is a criticism of the times and of a system that let such a man down. There is a sameness in the pattern that gives a feeling of physical as well as mental stature, of dignity and simplicity even in prosperity. Such men are Farmer Boldwood, Adam Brundish, Mr. Vincent, and Mr. Blanchard. Jim Brockway would like to be one if circumstances permitted.[27] The life they lead is serene and full, economically secure, and rich in noneconomic rewards.

The dirty-boot farmer presents a greater diversity within the type. Reuben Backfield is at one extreme. He is a farmer to whom the conquest of the land is everything, and for it he sacrifices the love or life of his mother, his brother, two wives, his only real love, and ten children—an imposing list.[28] Then there is old Ben Geaiter, who lives on and for his farm, shuns society, ignores social opinion, and dies in his field.[29] At the other extreme is Tod Freeland, whose farming consists of being in the fields studying nature whenever he is called upon to appear on the scene.[30] Next to him on the scale are George Gale and Joss Elvin, who farm their small holdings contentedly and have a strong hint of the peasant in them which differentiates their characters from that of their contemporaries.[31] This is shown clearly in the affinity between Gale and Theresa,

[23] Kaye-Smith, *Ploughman's Progress*, 29–31, 163.

[24] Kaye-Smith, *Sussex Gorse*, 3, 124–125, 359–360, 395.

[25] Galsworthy, *The Freelands*, 100, 117–121, 188–194, 236.

[26] Kaye-Smith, *Ploughman's Progress*, 18–22.

[27] Hardy, *Far From the Madding Crowd*, 112–113; Freeman, *Pond Hall's Progress*, 8, 10, 124–125; Kaye-Smith, *Ploughman's Progress*, 3, 84–87; Street, *Farmer's Glory*, 21–24, 29, 38, and *Already Walks Tomorrow*, 47.

[28] Kaye-Smith, *Sussex Gorse*.

[29] Freeman, *Joseph and His Brethren*, 11.

[30] Galsworthy, *The Freelands*, 62.

[31] Freeman, *Pond Hall's Progress*, 78–79, 145–146, and *His Own Place*, 146–147, 160–163, 195–199.

the Italian peasant wife of Dick Brundish, the clean-boot farmer.[32]

Between these two groups is a third, if two minor characters can be called a group. Abe Mortimer, who loves his land,[33] and Reuben Backfield's father, who says to his ambitious son, "Wot's the use of hundreds of acres if you äun't comfortable at höame? I've no ambitions, so I'm a happy man. I döan't want nothing I haven't got, and so I haven't got nothing I döan't want. Surelye!"[34] While these two men are the only ones of the type sufficiently prominent to be specifically noted, they seem to be the prototypes of the extras that serve to fill the stage and provide the contrast for the dramatic principals. It is for this reason that these seem to be the average farmer.

The third member of the agricultural trio, the laborer, is most subject to typing. Perhaps because of a placidity of character and slowness to change he is nearly always shown as a backward rustic, whether the dramatic ingredient is tragedy or comedy. Only three of the novels studied have laborers as the central character and only one remains a laborer throughout.[35] Of the other two Gabriel Oak begins as a farmer, fails, and again becomes one, but only through marriage; Joss Elvin begins and ends as a laborer but is an independent farmer through most of the book.[36] It is notable that all three are figures of tragedy. This is the underlying theme concerning the laborer, the sense of decline from the dignity and importance of the older days. With this decline is a corresponding decline of the comic aspect of the countryman.

Only by Thomas Hardy is the traditional caricature fully developed and here only with minor characters in scenes designed to relieve the tragic tone of the rest of the book.[37] The other works have some examples of this same literary technique, but they are confined to pictures of a passing generation and surrounded with an aura of regret. The tale of "Ganfer" Goodridge, the drowner, the expert flooder of meadows, who warns the retired general that his chicken houses will flood if left where they are and is called an anachronism for his pains, and then dies happy from excitement and exertion when his prophecy is fulfilled, is a case in point.[38] This general view of the laborer is a comment on both English farming and English fiction.

The most obvious common trait that marks these individuals and that cuts across the class lines of the rural society is a basic conservatism. It is the facet of character that seems to be dominant and unchanging, regardless of the changing times. It is seen in the adherence to the social structure, previously noted, in the political activities, and in a slowness to accept technical innovations. This is not a criticism of the farming population but is more a reflection of a wholesome regard for tradition and regularity. As A. G. Street has pointed out, the four-course rotation system was as "unalterable as the laws of the Medes and Persians," and the first duty of the farmer is to his land. The combination, according to Street, is a basic cause of the conservatism of both master and men.[39]

The little direct political action that is taken by the various individuals in the novels is usually conservative, but, if liberal, is notable as an exception to the rule. Reuben Backfield's unsuccessful ventures into politics are on behalf of the Tory Party. Mr. Vincent, although he agrees with Jim Parish that neither political party helps the farmer, still votes conservative. A. G. Street has noted that "his father," Mr. Blanchard, was a liberal and, as such, was close to heresy, and that at times the proper politics is one of the qualifications for tenancy. Abe Mortimer is a revolutionary because of his views on the land problem.[40]

This political conservatism must, however, be balanced by reference to the laborers' activities. There is an undercurrent of restlessness among the laborers, a vague leaderless discontent, a sense of inability to see what they want or how to achieve such goals as they do perceive. Street observed that the laborers were generally liberal during the years preceding the first World War and that this was due to their preference for free trade, which meant more food for them than they would

[32] Freeman, *Pond Hall's Progress*, 216–217.

[33] Bates, *The Fallow Land*, 13.

[34] Kaye-Smith, *Sussex Gorse*, 20.

[35] Kaye-Smith, *Ploughman's Progress*.

[36] Hardy, *Far From the Madding Crowd*, 9, 378–382; Freeman, *His Own Place*.

[37] Hardy, *Far From the Madding Crowd*, 269–272.

[38] Street, *Farmer's Glory*, 63–72.

[39] *Ibid.*, 32–33.

[40] Kaye-Smith, *Sussex Gorse*, 174–176, 434, and *Ploughman's Progress*, 86–87; Street, *Farmer's Glory*, 84–85; Bates, *The Fallow Land*, 58–59.

have under a protectionist system.[41] In *Sussex Gorse*, the elections of 1865 in the Rye district are notable in that the agricultural element in general takes an unusually active part and does not leave the activity to the port and shipping interests. The election is decided in favor of the liberals, although at first the conservatives, who have a protectionist program for agriculture, seem to be ahead. The decisive point, however, is not an issue concerning agriculture, but a local problem of a toll gate which is used to inflame the populace against the conservative candidate who owns it.[42] A third example is that given by Galsworthy in his work. Here the laborers' agitation suffers from the lack of leadership and a real comprehension of the possible goals.[43]

The reluctance on the part of the farmer to accept technical change is evident in several places. Benjamin Mortimer talks his mother into buying new machinery, but she does so with hesitation and misgivings. Dick Brundish storms against sugar beets. "These here new fangled crops," he says, "wholly faze me." In *Farmer's Glory*, the young son, upon his return from Canada, is able to demonstrate the value of a double-furrow plow to his father and foreman only under the pressure of a wartime labor shortage.[44]

The farmer's dislike and distrust of the city and its ways are closely allied to his conservatism. It may often be in essence a conflict between the new and the old. The village is the principal battleground, for it is here that the two most frequently meet. Almost all the novels have scenes in the village inn where the men, master and laborer alike, go to have a "wet" and to meet their friends. To give but one example of the effect of the city's encroachment, two scenes from Freeman's *His Own Place* will illustrate the results. At the opening of the book, Matthew Elvin, who has a local reputation as a singer of the old songs, entrances the crowd with his rendition of "The Young Sailor Cut Down in his Prime." At the end of the book his son, Joss, and his two cronies, attempting to sing the same song, are drowned out by the younger generation with the bellowing of an American jazz song.[45]

[41] Street, *Farmer's Glory*, 83–84.

[42] Kaye-Smith, *Sussex Gorse*, 172–185.

[43] Galsworthy, *The Freelands*, 100.

[44] Bates, *The Fallow Land*, 214; Freeman, *Pond Hall's Progress*, 185; Street, *Farmer's Glory*, 202–203.

[45] Freeman, *His Own Place*, 17–20, 269–273.

The town and country do not mix. The rare examples of an individual successfully transcending the barriers attest to this. Richard Backfield becomes a lawyer but loses what little feeling for the rural life he had. General Danvers succeeds in becoming an accepted landlord because he follows the ways of the country and he listens to the advice of his wife, who had been brought up in a Wiltshire village. The reverse side of the picture, those who try and fail, gives further support to the thesis. Joss Elvin leaves the farm to try his hand as a "bouncer" in a London pub. He succeeds in his job but the nostalgia raised by a Suffolk dialect and the vision of the results of successive "beanos" drive him back to the farm.[46]

But this is not the real picture, for no matter how stubborn the resistance to urban encroachment of all types, it is futile, and the city is the victor. The first World War and the passage of the profitable farming of the prewar type mark the most prominent turning point. It is after this that the motor car and motorcycle turn the pleasant lanes into speedways, and the cinema replaces the old-time fair.[47] The farmers no longer live a pleasant secure life, and the new generation of both farmer and laborer ceases to regard their occupation as either honorable or profitable. The farmer's son now takes a step upward when he becomes a teacher or finds more satisfaction in driving a bus than following a plow. The laborer's son changes his corduroys for the white jacket of an ice-cream vendor.[48] Each succeeding invasion and victory of the city are causes for mourning by the authors and their characters.

This decline is attributed to the obvious downward economic trend of English agriculture. It is the system, not the people. Galsworthy blamed industry and a narrow officialdom that "sops" the "peasantry" from the land.[49] Other authors voice similar causes, but these are reserved for a later section of this article.

What needs to be treated at this point is the

[46] Kaye-Smith, *Sussex Gorse*, 390; Street, *Farmer's Glory*, 65–69; Freeman, *His Own Place*, 122–123, 130–131.

[47] Bell, *Men and the Fields*, 34–35; Freeman, *Pond Hall's Progress*, 95–96, 175. For scenes of the nineteenth-century country fairs, see Kaye-Smith, *Sussex Gorse*, 2, 59, 165–167, 350.

[48] Street, *Already Walks Tomorrow*, 73–74; Bates, *The Fallow Land*, 228; Freeman, *Pond Hall's Progress*, 233.

[49] Galsworthy, *The Freelands*, 6.

question of whether or not the people were degenerating in the eyes of the novelists or their characters. There is no majority on this matter, for both views are presented. On one hand there is, for example, Fred Sinden, the former plowman who refuses to return to his old status but prefers the seminomadic life of a migratory caravanner;[50] or Deborah Mortimer, who replies to her worthless husband's comment that the land is in a poor way: "The land's all right, it's the people on it. The land's the same as ever."[51] To balance this view are the portrayals of Jim Parish's struggle against adverse economic conditions, of Joss Elvin who is defeated only by the war, the market, and old age, and the general view of the English response to a world and national famine given in Street's semiprophetic *Already Walks Tomorrow*.[52]

The Land and Its Relation to the Farmer. It is his relation to the land itself that divides the farmer from men in other occupations. It leaves a stamped impression on his character and his thinking. This relation to the land is an emotional one that is beyond the simple economics of making a living. The land demands much of the men who work it, and its rewards are peculiarly its own. The farmer in fiction is frequently an overemphasized picture, a heightened example of the normal. This is due both to the demands for drama and the contrast with the impersonal flatness of the nonfictional counterpart.

The most obvious comparison that can be made on the farmer's view of the land is to contrast his view of his fields with that of a townsman. The urban dweller, especially if he lacks any rural background, tends to see the countryside in one of two ways. He may take the aesthetic approach of the nature lover. This approach appears at its best in the descriptive passages of the novels where the author is merely sketching a backdrop for the action for the benefit of the reader. Hardy did this frequently and much better than most, but rarely is it an expression of the appreciation of beauty by the characters themselves.[53] At its worst, this aesthetic approach to the rural scene is held up for light and laughable contrast to the reality of the farmer's knowledge of the land. When old Reuben Backfield, who conquered 300 acres of moor, talks to some young modern aesthetes, one of them comments, "Ah—but he's never heard Pan's pipes."[54]

The other urban approach to the countryside is that of the rustic retreat. The resultant encroachment upon the countryside is viewed as an abomination by the farmers for the land so used is largely wasted. What farming is done by the townsman is done as a hobby and generally costs more than it produces or attempts to produce.[55]

On the other hand the farmer sees his land in terms of his job and the results. The traditional Sunday morning walk around the farm is not only a pleasant stroll but an opportunity to estimate the work to be done and the results of past labors. He views the land with a mixture of pride and a feeling of dominance.[56] This difference in approach is the difference between the land as a vocation and as a pastime. For the farmer, the land must first provide a living before he can enjoy its other benefits.

Work on the land is inseparable from the weather. It is the large uncontrollable factor in farming, for, as Jess Mortimer tells his town-bred wife, "On the land you work when the weather lets you and while you've got a chance. You can't pick and choose."[57] At best the farmer can erect but passive defenses against the vagaries of climate; he must gaze at the sky and hope. The timing of the weather is as important in the year's yield as the quantities of its components. Crops can be spoiled by a heavy storm just before or after harvest. Too much hot weather at harvest time almost brings disaster to the Mortimers when all their crops ripen at once.[58] This outlook on weather is also a great factor in differentiating the town from the country. For the townsman, observed A. G. Street, the weather only touches the "fringe of life" but for the farmer it is "your livelihood, your pleasure, your friend, your enemy, and your continuous study."[59]

[50] Kaye-Smith, *Ploughman's Progress*, 327–338.

[51] Bates, *The Fallow Land*, 245.

[52] Kaye-Smith, *Ploughman's Progress*, 20–22; Freeman, *His Own Place*, 221, 240–241, 252–259; Street, *Already Walks Tomorrow*, 373.

[53] Hardy, *Far From the Madding Crowd*, 7, 134–135, 318.

[54] Kaye-Smith, *Sussex Gorse*, 458–460.

[55] Kaye-Smith, *Ploughman's Progress*, 40; Galsworthy, *The Freelands*, 29–30.

[56] Bates, *The Fallow Land*, 89; and Kaye-Smith, *Sussex Gorse*, 461–462.

[57] Bates, *The Fallow Land*, 84.

[58] Hardy, *Far From the Madding Crowd*, 230–238; Bates, *The Fallow Land*, 105, 135.

[59] Street, *Farmer's Glory*, 75.

The land as a source of living, in addition to making one subject to the perversities of weather, is exacting in its demands for work. The novelists have presented this work in two aspects. To some of them the farmer has nature as an antagonist to be subdued, conquered, and subjected to the unnatural indignities of cultivation. This can be done only through ceaseless and Herculean labors. This view at its extreme results in a personification of the land into a malicious and stubborn opponent.[60] With less drama but more practicality the general picture is of an intractable nature, but also an impersonal one. The land may be hard to work and difficult to maintain or improve, but it is not malevolent. Old Ben Geaiter and his sons turn Crakenhill, which had defeated every previous owner, into a flourishing farm by sheer physical labor.[61] Joss Elvin transforms Chafinch's derelict acres into a small but impressive farm by the same method, and Deborah Mortimer knows that the land masters the owner if the owner fails to master the land, and that work is the only sure road to mastery.[62]

The other view of work on the land is one of submission to the beneficent but undeviating laws of nature. This acceptance of the land's unalterable demands makes farming a matter of patience and a respectful "humoring" of the fields. Here there is no battle but cooperation. It is a system of known rewards and punishments. The most frequent example given is the effect of overcropping with wheat.[63] Actually these two views are fundamentally alike in that they emphasize the fact that land must be worked but cannot be abused. This is shown not only in the success of those who work but the failure of those who do not.[64]

Work alone, however, is not the only basis of successful farming presented, for to avoid abuse of the land knowledge of the land and its ways is necessary. The knowledge required is first of all in terms of farming in general; this is acquired in an empirical fashion. The farmers presented by the novelists are natives of the rural scene. They were born and raised on farms, and their agricultural education began when they were children.[65] The few exceptions to this substantiate the thesis for, of those characters depicted who become farmers without a farm background, only two succeed; one survives only through hard work, and the other through intelligent specialization.[66]

In addition to the general knowledge required for successful farming, the farmer must know the characteristics of his particular area. Jim Brockway, seeking for a place to launch his experiments, rejects unfamiliar territory on the basis of his own deficiencies rather than that of the land.[67] Beyond this is the demand of the land for knowledge of its ways, down to the personality of each individual field.[68] Reuben Backfield's intimate knowledge of Boarzell Moor is a large factor in his ability to subdue it. The Geaiter brothers, surveying the land they once had farmed, readily see the errors of their successors for they know the character of the various plots.[69] It is not only the peculiarites of the soil and topography of the fields that must be known, but also their history, for farm planning cannot be done on a year to year basis without disastrous results. This is why the first thing Jim Brockway does in selecting his new farm lands is to talk to an old shepherd who knows the use to which the land has been put in the past.[70]

The implication of this concept is the universal acceptance by all the novelists of the necessity of systematic rotation as the basis of good and successful farming. As a corollary to this there is the feeling that the only real farming is based upon grain production. This ideal is a result of both the conservatism of the farmer and the nostalgic

[60] Kaye-Smith, *Sussex Gorse*, 47, 242.

[61] Freeman, *Joseph and His Brethren*, 1–2, 21–26.

[62] Freeman, *His Own Place*, 146–147, 190–193; Bates, *The Fallow Land*, 130, 224.

[63] Street, *Already Walks Tomorrow*, 114–115, 126–127; Freeman, *His Own Place*, 165–166.

[64] Hardy, *Far From the Madding Crowd*, 234–244; Freeman, *Joseph and His Brethren*, 60–62; Bates, *The Fallow Land*, 220–224.

[65] Freeman, *Joseph and His Brethren*, 228–229, and *His Own Place*, 23–25.

[66] Bates, *The Fallow Land*, 126–128; Street, *Farmer's Glory*, 259.

[67] Street, *Already Walks Tomorrow*, 156–157, 159.

[68] Cf. Hall, *Reconstruction and the Land*, 59; Street, *Farmer's Glory*, 295. In discussing the diversity of soils, Hall wrote: "... there are in Britain few large areas of uniform type where the soil of any one farm resembles that of its neighbours; indeed it is not uncommon to find soil varying in bewildering fashion from field to field and even within the limits of the field."

[69] Kaye-Smith, *Sussex Gorse*, 424; Freeman, *Joseph and His Brethren*, 260–262.

[70] Street, *Already Walks Tomorrow*, 285–287.

memories of the mid-nineteenth century heyday of farming. As expressed in the mind of Reuben Backfield, "He pictured Odiam chiefly as a great grain farm—though there might be more money in fruit or milk, these would be mere temporary profit-making concerns, means to an end; for glory and real permanent fortune lay in wheat."[71]

The only deviations presented are of fruit farming and dairying. In the first case the deviation is used only to show the position of the skilled agricultural laborer in an economic system that has no use for his skill. The other deviation shows a moderately successful dairy farmer lamenting the decline of grain farming.[72]

The picture, then, is almost overwhelmingly that of the mixed farming on a careful regular rotation designed to produce grain, largely wheat, without exhausting the land. A. G. Street is the only author who has specifically noted in detail the actual course of rotation. The order of cropping is wheat, then clover, rye, winter barley or vetches, succeeded by swedes and kale, which are followed by rape and turnips, then back to wheat again. This is allied with a flock of sheep which is folded over the fields with equal regularity. Elsewhere he remarked that crop, stock, manure, and soil are the bases of all farming.[73] The most frequent comment on rotation in the novels, however, is embodied in the numerous descriptions of the inevitable results of overcropping and, since wheat is the key to the system, it is specifically the attempts to produce more wheat that cause the damage to the land.

As compensation for these often heavy demands of the land on the farmer, the land does have certain rewards that hold the people to it despite the lure of the alternatives. It gives to the owner a sense of independence and pride as well as a mark of social distinction. When Tod Jordan praises the bread that Suzy Elvin had made from her husband's own wheat and calls her "a farmer's wife," it is a great compliment both to her and her husband, as well as evidence of their achievement.[74] The ownership, however, must be accompanied by good farming in order for the individual to maintain respect and standing, and good farming itself would gain respect whatever the personal character of the individual.[75] The tenant farmer, although not an owner, shares these rewards, as does the agricultural laborer, for good farming offers stability and security for those who have ability.[76]

When farming provides these things it has the further hold upon the people of offering the pleasures of country life to go with them. Life lived largely in the open, the joy of productive physical labor, hunting, and a congenial and ordered society loom large in the novelists' evaluation of the farmers' rewards.[77] But these are dependent upon the economic basis of farming and can be maintained only when farming is prosperous.

Rural Economics. The economic story of the English farmer as told by the novelists falls into two major periods: the years from about 1830 to 1914, and the years since 1918, with the war years serving as a marked transitional phase. The first period is characterized by what one of the authors has called "a spaciousness, and an aura of solid well-being" with little to worry about on the business side of farming.[78] The second period is characterized largely through contrast with the first and is marked by the decline of various or all aspects of the former years. In nearly all of these contrasts, there is not only the record of the changes but a moralistic reproach to the nation for allowing such change and a deep regret for the passing of the old ways. The assumption is that the land and the people have not changed except through the force of economic pressure and the neglect of the dominant urban society, both politically and socially.

It is within the first period that the conventional view of farming was formed. The country was in the process of becoming both industrialized and liberalized. This period witnessed the disappearance of the last medieval residues and the molding of the new rural structures, and the firm establishment of and improvements upon the agricultural changes of the eighteenth century came to fruition. The farmer during these years was prosperous, stable, and respected. Only the hazards of na-

[71] Kaye-Smith, *Sussex Gorse*, 85.

[72] Kaye-Smith, *Ploughman's Progress*, 238; Street, *Farmer's Glory*, 294.

[73] Street, *Farmer's Glory*, 39–40, and *Already Walks Tomorrow*, 199.

[74] Freeman, *His Own Place*, 169–171.

[75] Kaye-Smith, *Sussex Gorse*, 175.

[76] Street, *Farmer's Glory*, 39.

[77] Kaye-Smith, *Ploughman's Progress*, 62, and *Sussex Gorse*, 112; Freeman, *His Own Place*, 62–64; Street, *Already Walks Tomorrow*, 15–16, and *Farmer's Glory*, 296.

[78] Street, *Farmer's Glory*, 26–27.

ure or the faults of character caused failure, not the competition of the new worlds in an unprotected market.

It is not that the farmer is presented as having no problems of a financial nature, but that the problems are presented as solvable and temporary. Capital is available, even though at times hard to get, and investment in land is sound. Once the crops are raised the market is present and profitable, so much so that it is rarely mentioned. Where the authors have been concerned with the problem of expansion, it has been an undeviating chain of successes. Whether it is the laborer buying a farm for himself or a farmer adding a field or a hundred or more acres, it is possible for each to do so.[79]

The fictional picture of these days is not without its presentments of the difficulties that are the core of the postwar period. Ben Geatier comments bitterly upon the effects of Canadian wheat.[80] Reuben Backfield campaigns for protection from foreign competition; he also loses a son in the Boer War, a hint of the devastation of the rural population that was a result of the first World War.[81] The alternatives to farming have yet to cut deeply into the rural population, but they do appear enough to show how the individual can escape from abnormal conditions.[82] These flaws, however, are small in the whole canvas which has provided the basic portraits of farmers, farms, and farming that make up the preceding sections of this study.

The first World War marks the division between the old and the new. Because they intensify some of the problems of farming as well as add new problems, the war years are a distinct period in agricultural history. The war brought with it a great surge of farm prosperity.[83] The pressure of the German submarine blockade compelled the British government to promote and then force the production of grain. The high guaranteed price on wheat resulted in deliberate overcropping, by some because of greed, by some because of patriotism, but against the better judgment of the farmers who sought to preserve their land.

Whatever the motive, the effect upon the consequent sterility of the soil was the same. Both Walter Clary and Joss Elvin, the former because he wants to cash in on the opportunity, the latter because his sons have died in the fighting, break land that should not have been plowed. As a result Trust Farm and Clod Midder both become derelict worthless lands.[84] There is no recorded defense or statement of necessity of this practice in the novels. It is presented as a mistake with tragic consequences to the land. A. G. Street, in his projection of the future of English farming during a food crisis, has suggested that the proper practice is a strict adherence to rotation, which in the end will produce the needed grain; in the interim, the people could live on potatoes.[85]

The second important effect of the war upon English farming was the severe cut it made in the labor supply. During the war years it was, of course, the drastic demands of both the industrial economy and the military forces that reduced the agricultural labor supply to a minimum or below. The result was that the work done on the land was insufficient to meet all the demands being made upon its productive capacity.[86] Had it been only a temporary problem it would have deserved less comment, but many of the losses were permanent through death in the war or the new-found sophistication so well expressed by the American song, "How ya gonna keep 'em down on the farm after they've seen Parce."[87]

The prosperity of the war years was carried over briefly into the postwar period. Then the removal of the guarantee on wheat plunged the old conventional English farmer into a struggle for survival. The urban demand for the revival of cheap food again easily overrode the minority agricultural interests. Further, no attempt was made to reduce anything but the price. The farmer still had to pay the high fixed charges of wages and taxes based on the former guaranteed price.[88]

[79] Freeman, *His Own Place*, 136, *Joseph and His Brethren*, 12–13, and *Pond Hall's Progress*, 11; Kaye-Smith, *Sussex Gorse*, 406.

[80] Freeman, *Joseph and His Brethren*, 24.

[81] Kaye-Smith, *Sussex Gorse*, 86, 416.

[82] *Ibid.*, 187–189, 228–230; Freeman, *Joseph and His Brethren*, 26–27, 44–49, 330–338.

[83] Street, *Farmer's Glory*, 209–210.

[84] Freeman, *His Own Place*, 227, 247–251.

[85] Street, *Already Walks Tomorrow*, 370.

[86] Freeman, *Pond Hall's Progress*, 8–9; Bates, *The Fallow Land*, 203.

[87] Freeman, *His Own Place*, 221; Bates, *The Fallow Land*, 200.

[88] Street, *Farmer's Glory*, 226–227.

Wartime prosperity had forced both rent and wages to new heights, but as long as the price of wheat held up and the market was insatiable these could be met with ease. The government had been forced in the course of its critical need for food to insert wage as well as price clauses in its agricultural legislation to keep sufficient labor on the farms and to prevent the available manpower from going to the higher paid construction or industrial jobs.[89] The prosperity of farming had led to increasing competition for the land and a consequent rise in rents.[90] Interest on capital and taxes were also higher. The repeal of the Corn Production Act subsidies in 1921 cut the ground from beneath the farmer.[91] For awhile the farmer attempted to hold out on the same system of farming, convinced of the need to continue the traditional rotation both as a duty to the land and as good economic policy.[92] The only way to combat the financial losses was to increase production, and increased wheat production only intensified the problem.

As a result, rather obviously, the old mixed farming based on wheat could not long survive the continued and inevitable drain on capital. The general view of the novelists is one of stubborn clinging to the old practices, hoping for a revival that never came. This ultimate, if gradual, disappearance of traditional farming is depicted in somber colors, tragic to both the nation and the individual. The roll call of the fictional farmers who fail is long. Mr. Vincent resigns and takes his place alongside his plowman as a laborer. Mr. Penfold dramatically spends his total profit on a hundred Kent lambs by buying a few rounds for the house at the local pub to show how futile it is to try to go on. Dick Brundish drastically reduces the size of his once proud Pond Hall, and his widow leaves it to the ignominy of inclusion in the syndicate farm which has already swallowed up his neighbors' land.[93]

In each case the cry is for capital to tide the farmer over until prices rise.[94] This the farmer thinks is the need, but this view is not shared by the people who have capital to invest. The profit had gone out of farming on the old basis, and more capital would only go down the same drain. When Dick Brundish attempts to gain an extension on his debts, he is refused on the basis of his failure to change his methods of farming. The solution to the problem is thought to be the reduction of costs, but since the extent of reduction necessary is so great and the means of accomplishing it so drastic, even this does not help the cause of retaining agriculture on its former basis.[95]

The reduction of costs is restricted largely to the reduction of labor costs. This in turn means mechanization, and mechanization demands extensive syndicate farming to bear the heavy capital investment. This, of course, means the end of the yeoman or tenant farmer.[96] The alternative to continued grain or mixed farming is specialized farming, especially dairying. Even here the reduction of labor costs and heavy capital investment is of prime importance.[97]

The results to the rural individual and the classes have already been sufficiently noted. Whether landlord, farmer, or laborer, the person dependent upon agriculture for his living could no longer find the security, the pleasures, or the profit once so familiar and certain. The tragedy to the individual, however, is only half the lament. The nation also suffered. The loss of the solid rural elements and their replacement by effete, shiftless migrants or an urban proletariat are signs of decadence.[98]

But more emphasized and perhaps more to the point is the doctrine of the land as the ultimate bulwark of the nation. This idea, best expressed but not necessarily supported by A. G. Street, is undoubtedly the result of the food crisis of the first World War. The demands of national security are such that England must have a certain source of food and, since her ocean highway was shown to be vulnerable, the only alternative is her own agricultural capacity. This need for

[89] *Ibid.*, 202–203; Freeman, *Pond Hall's Progress*, 8–9.

[90] Street, *Farmer's Glory*, 229–231.

[91] Freeman, *Pond Hall's Progress*, 143, and *His Own Place*, 227–228; Street, *Farmer's Glory*, 226–227.

[92] Street, *Farmer's Glory*, 231–232; Freeman, *Pond Hall's Progress*, 249–251.

[93] Kaye-Smith, *Ploughman's Progress*, 214, 302–305; Freeman, *Pond Hall's Progress*, 168, 249, 301.

[94] Kaye-Smith, *Ploughman's Progress*, 105–108; Freeman, *His Own Place*, 252–259, and *Pond Hall's Progress*, 156–157, 160.

[95] Freeman, *Pond Hall's Progress*, 156–157, 203–205; Street, *Farmer's Glory*, 231.

[96] Kaye-Smith, *Ploughman's Progress*, 307; Freeman *Pond Hall's Progress*, 162–165, 168, 207, 301.

[97] Street, *Farmer's Glory*, 250, 307–308.

[98] Galsworthy, *The Freelands*, 6; Freeman, *Pond Hall's Progress*, 178–179; Kaye-Smith, *Ploughman's Progress*, 46.

ecurity, coupled with the postwar decline in farming which greatly if not wholly destroyed the old ixed farming, is the cause for alarm. The fundamental idea behind this fear is that only the former ype of farming can meet all the food needs of the ation and can continue to do so over an indefinite eriod of time. Therefore, to maintain a secure ood supply, the nation must continue to support ome agriculture of the prewar type to guarantee he retention of both the necessary skilled farmer nd the fertility of the soil.[99]

The obvious implication of this belief is the corollary desire and need for protection, since English agriculture could not compete in a free market. The drive, therefore, is toward the renewal of subsidies or tariffs which would restore the old system by making it again profitable. Beyond this there is little indication of specific solutions which could be combined with an acceptance of the change. The feeling shows again the note of nostalgia for the old days, the regret for their passing, and the hope for their revival. Only Street has suggested forward-looking possibilities and taken a bright view of the future.[100] This is due undoubtedly to the nature of his writing, which is primarily expository and propagandistic and only secondarily fiction.

Conclusion. When the composite picture of English farming in novels of the last hundred years is compared to that of the historians, it is apparent that the fictional view corresponds in its main outlines with the nonfictional view. The novels cannot be expected to exhibit broad generalizations or the average character; therefore, criticism of them must be limited to the possibilities within the wide range of the historical setting. In this matter the novelists have conformed to the extent that errors and misinterpretations of fact are not readily detected.

Two impressions which the novelists leave with the reader need to be balanced. The first is that the decline in English farming came suddenly after the first World War. There is little in the fictional accounts to indicate that the years between 1874 and the turn of the century were not as prosperous as those before that time or the brief period after that. This seeming oversight by the novelists is due perhaps to their concentration upon the traditional structure of rural society and methods of farming.

The second impression that needs to be retouched is the view of the agricultural laborers as contented and generally well treated. As Sir A. Daniel Hall commented: "The story of the agricultural worker class is not one of the happier chapters of English social history, even if we do not accept in its entirety the terrible picture presented by the Hammonds in *The Village Labourer*."[101] The authors of the novels have not specifically contradicted Hall's views, but it is rather that these impressions are gained through omission of any treatment of them. Nor can it be said that the literature on English farming as a whole would substantiate this criticism, for the field has not been sufficiently covered to warrant such a conclusive statement.

The approach of these novelists to the English farmer and his problems is consistently that of the farmer. The lone exception is Galsworthy's volume, *The Freelands*. This one-sidedness, while it has the advantage of reinforcing the sense of reality in the books, has also colored the presentations to the detriment of the urban side of the problem. However, the urban view of farming, if examined, would probably show an equal if not greater prejudice the other way. The principal result of this approach is the pervading nostalgia for the past. This is not unreasonable nor overdone and may be considered as a necessary ingredient in the portrayal of English farming, for farming is noted for its conservative respect for tradition, its slowness to change, and its long memory for past glories.

It might be said that the English farmer has found in these novelists able protagonists to present him to the reading public, for they have written with skill as well as general accuracy. They have avoided the comic treatment of rural character and the sentimental attachment to the naive and simple rustic. The farmer emerges from their pages as a normal human being. The major deficiency in the literary treatment of the English farmer seems to be one of quantity rather than quality if the reader seeks to find an accurate series of portraits.

[99] Street, *Farmer's Glory*, 299–301, 305–306, and *Already Walks Tomorrow*, 131–132.

[100] Street, *Farmer's Glory*, 295–312. Kaye-Smith, *Ploughman's Progress*, 203, 311, has a faint hint of a possible revival, but it is based on wheat and must be balanced with the greater emphasis upon the decline of English farming.

[101] Hall, *Reconstruction and the Land*, 79.

NEWS NOTES AND COMMENTS

EDMUND CODY BURNETT

Dr. Edmund Cody Burnett, a charter member of the Agricultural History Society, died at Sibley Hospital in Washington, D. C., on Jan. 10, 1949 after a short illness.

Born in Henry County, Ala., on Nov. 29, 1864, Dr. Burnett was educated at Carson-Newman College, Jefferson City, Tenn., and at Brown University. He taught at these institutions and at Bethel College, Russellville, Ky., and Mercer University, Macon, Ga. In 1907 he joined the department of historical research of the Carnegie Institution of Washington and remained there until his retirement.

Dr. Burnett's main research interest was the Confederation period of American history. His best-known work was *Letters of Members of the Continental Congress* (Washington, 1921–36) in eight volumes. His book, *The Continental Congress* (New York, 1941), received the Loubat prize in 1943.

Dr. Burnett attended many of the Washington meetings of the Agricultural History Society, including its luncheon on Dec. 30, 1948. Members will long remember the common sense he propounded in the form of anecdotes on these occasions and the articles on his beloved French Broad River region that he contributed to *Agricultural History*.

APRIL 1949 MEETING

The Agricultural History Society held a joint session with the Mississippi Valley Historical Association at the Hotel Loraine, Madison, Wisconsin, on the afternoon of April 15, 1949. The subject of this session was Significant Agricultural Trends in the Mississippi Valley, and the following papers were scheduled: "Pre-Civil War Trends," by Everett Dick, Union College; "Late Nineteenth Century Trends," by Fred A. Shannon, University of Illinois; and "Twentieth Century Trends," by Louis Bernard Schmidt, Iowa State College. Due to illness Professor Schmidt was unable to complete his paper for presentation, and Everett E. Edwards prepared a paper on the same subject which he presented. Wilbur H. Glover of the State Historical Society of Wisconsin and Earl W. Hayter of Northern Illinois State Teachers College discussed the papers formally, and Herbert A. Kellar of the McCormick Historical Association presided.

The Forest Products History Foundation held a joint session with the M.V.H.A. on the morning of April 16. At this session the following papers were read: "From Woods to Sawmill: Transportation Problems in Logging," by William G. Rector, University of Minnesota; "Saving the Kerf: The Introduction of the Band Saw Mill," by Rodney C. Loehr, Forest Products History Foundation; "Logs for Saginaw: An Episode in Canadian-American Tariff Relations," by Robert C. Johnson, University of Minnesota; and "The War of the Substitutes," by Paul F. Sharp, Iowa State College. Everett E. Edwards presided.

ACTIVITIES OF MEMBERS

Edward Everett Dale's address on "Two Mississippi Valley Frontiers" before the Mississippi Valley Historical Association at Cleveland on Dec. 27, 1947 has been published in the *Chronicles of Oklahoma*, 26:366–384 (Winter 1948–49). He has an article on "Wood and Water: Twin Problems of the Prairie Plains," in *Nebraska History*, June 1948. Professor Dale and his colleague, Morris L. Wardell, are the authors of the recent book, *History of Oklahoma* (New York, Prentice-Hall, 1948, 572 p., illus.).

Chester McA. Destler is the first appointee to the Charles J. McCurdy professorship in American history at Connecticut College. The professorship was made possible by a bequest from the late Mrs. Evelyn McCurdy Salisbury in honor of her father, one of Connecticut's most distinguished jurists.

Gilbert C. Fite of the University of Oklahoma presented a paper on "The Mechanization of Cotton Production: A Historical Survey of Recent Developments" at a session of the M.V.H.A. at Madison, Wis., on Apr. 14, 1949. He is also the author of "Voluntary Attempts To Reduce Cotton Acreage in the South, 1914–1933," in the *Journal of Southern History*, 14:481–499 (November 1948), and "John A. Simpson: The Southwest's Militant Farm Leader," in the *Mississippi Valley Historical Review*, 35:563–584 (March 1949), and editor of "Some John A. Simpson-Franklin D. Roosevelt Letters on the Agricultural Situation, 1932–33," in *Chronicles of Oklahoma*, 26:336–345 (Autumn 1948). Fite's biography of *Peter Norbeck: Prairie Statesman* has been published as the University of Missouri *Studies*, vol. 22, no. 2 (Columbia, 1948, 217 p.).

Paul W. Gates of Cornell University presented a paper on "The Struggle for Land and the 'Irrepressible Conflict'" at a session of the M.V.H.A. at Madison, Wis., on Apr. 16, 1949.

Sidney Glazer of Wayne University is the junior author with Milo M. Quaife of *Michigan: From Primitive Wilderness to Industrial Commonwealth* (New York, Prentice-Hall, 1948, 374 p.).

Wilbur H. Glover of the State Historical Society of Wisconsin has an article on "The Agricultural College Crisis of 1885" in the *Wisconsin Magazine of History*, 32:17–25 (September 1948).